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CURRICULUM DEVELOPMENT THROUGH SCHOOL AND UNIVERSITY COLLABORATION. THE PITTSBURGH CURRICULUM CONTINUITY DEMONSTRATION, 4.

BY- GOW, J. STEELE, JR. AND OTHERS
PITTSBURGH UNIV., PA., LEARNING RES. AND DEV. CTR.

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A REPORT WAS MADE OF A 5-YEAR EFFORT TO FILL THE NEED FOR GREATER CURRICULUM CONTINUITY IN THE STUDENT'S TOTAL FORMAL EDUCATION. EVERY SEGMENT OF THE EDUCATIONAL CONTINUUM FROM KINDERGARTEN TO COLLEGE RECEIVED ATTENTION. CURRICULUMS IN ENGLISH AND READING, THE NATURAL AND SOCIAL SCIENCES, MATHEMATICS, AND FOREIGN LANGUAGE WERE ANALYZED AND REVISED, FIELD TESTED AND EVALUATED, DEMONSTRATED, AND DISSEMINATED. INVESTIGATIONS OF STUDENT PROGRESSION PRACTICES, INTERLEVEL AND INTERINSTITUTIONAL COLLABORATION, AND VARIOUS ORGANIZATIONAL STRUCTURES AND OPERATING PROCEDURES WERE MADE FOR IMPROVING THE QUALITY OF EDUCATION IN A CITY AND REGION. THE HISTORY OF THE PLANNING, FUNDING, STAFFING, AND IMPLEMENTING STAGES WAS DISCUSSED IN DETAIL. THE COURSE MATERIALS DEVELOPED CONSISTED OF MIMEOGRAPHED COURSE SYLLABUSES, STUDY GUIDES, PATTERN DRILLS, READINGS, AND OTHER INSTRUCTIONAL MATERIALS FOR USE WITH ACADEMICALLY ABLE STUDENTS. MODIFICATION OF PROFESSIONAL AND INSTITUTIONAL BEHAVIOR THROUGH SUCH EFFORTS AS DISSEMINATION AND ELABORATION WAS ANALYZED. SUCCESSES AND SHORTCOMINGS OF THE CURRICULUM CONTINUITY DEMONSTRATION WERE DETAILED IN THE APPRAISAL SECTION. (GD)

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Curriculum Development Through School and University Collaboration:

The Pittsburgh Curriculum Continuity Demonstration

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4.

A Report of the Regional Commission
on Educational Coordination
and the
Learning Research and Development Center

by J. STEELE GOW, JR.

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SCHOOL AND UNIVERSITY COLLABORATION

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The Pittsburgh Curriculum Continuity Demonstration

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Regional Commission on Educational Coordination

and the

Learning Research and Development Center

University of Pittsburgh

Pittsburgh, Pennsylvania

By J. Steele Gow, Jr.

With the assistance of:

Ann Bartley, C. M. Lindvall,

Francis Rifugiato and Norma Watters

DEDICATION

This publication is dedicated to the memory of the late Miss Stella Nardozza who, until her untimely passing, served as Associate Director of the Curriculum Continuity Demonstration and played a major role in the development of the program for the elementary grades.

FOREWORD

When the Regional Commission on Educational Coordination was established in 1958, the goal which it set for itself was to initiate steps leading to a greater coordination among all levels of education, elementary, secondary, college, and graduate school. As a step in furthering this effort, it established the Coordinated Education Center as an organization charged with the responsibility for implementing specific programs for furthering the desired coordination. A first step undertaken by the CEC was to inaugurate a program designed to modify the rigid procedures followed in the movement of students from junior high to high school and from high school to college. A description of this program was presented in the Commission's publication Meeting the Needs of the Able Student Through Provisions for Flexible Progression.

A major project of the Coordinated Education Center was undertaken in 1960 when, in partnership with the Pittsburgh Schools, it undertook the Curriculum Continuity Demonstration. This project which was carried out over a five-year period involved the collaboration, on a broad scale, of public school personnel and college faculty in the development of courses and curricula extending from the kindergarten through the first years of college. In this effort the Ford Foundation's Fund for the Advancement of Education provided substantial support. During the course of work on the CCD two additional publications were issued: The Modern Mathematics Movement: Its Impact on Schools and Colleges and Defining Educational Objectives.

This fourth publication in the Commission's series, prepared by Dr. J. Steele Gow, Jr., director of the CCD, summarizes the total project and points out the implications of this experience for other efforts involving the close collaboration of schools and colleges in programs for the improvement of education. It is felt that this report should be particularly useful at a time such as this when this desirable type of collaboration seems to be increasing rapidly.

A. C. Van Dusen

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CHAPTER I

INTRODUCTION

The Pittsburgh Curriculum Continuity Demonstration commanded the thoughts and energies of several hundred persons over the course of five years. During this period mistakes were made and lessons learned from those mistakes. Gains were made and lessons learned in that process as well. This experience, it is hoped, can have some value to others interested in curriculum development or in the practice of school and university collaboration for educational improvements. That is the reason for this report.

The project staff and the officers of the two collaborating institutions have no intention of presenting the Curriculum Continuity Demonstration (CCD) as a model which others should emulate. By design and intent, most of the material product of CCD -- the study guides, course syllabi, instructional materials, etc. -- lost their separate identity rather quickly and became indistinguishable parts of the on-going programs of the Pittsburgh Public Schools and the University of Pittsburgh. The changed professional attitudes and practices also merged imperceptibly into regular behavior. Nothing substantial now is to be gained by promoting these particulars and this report is not to be interpreted as an attempt to do so.

Rather the purpose here is to share with other educators, in schools and colleges and universities, some of the experience acquired in the hope that others may learn something therefrom and perhaps thereby do better than the CCD staff. We are convinced that we could do better ourselves if we were to try it again with the experience we now have and we believe others may profit similarly. Too often in education we repeat each other's mistakes and rediscover each other's innovations because we neglect to pool experience in this way. That at least is the CCD staff's rationale for presenting this report.

By reason of its size, scope, duration and complexity, the CCD deserves sharing. The project had generous financial support not only from the Pittsburgh Public Schools and the University of Pittsburgh but from the Buhl Foundation, the Fund for the Advancement of Education and, for particular aspects of it, a half dozen other foundations. Approximately 1,000 persons participated in its preparatory symposiums and study panels, in its task forces, steering committees, and advisory councils. Half of these persons contributed their time and counsel without compensation and every one of them contributed well beyond any compensation that was provided.

Every segment of the educational continuum from kindergarten to college received attention. Curricula in English and reading, the natural and social sciences, mathematics, and foreign language were analyzed and revised, field tested and evaluated, demonstrated and disseminated. Experiments were conducted in student progression practices, in inter-level and inter-institutional collaboration, and in various organizational structures and operating procedures for improving the quality of education in a city and region.

We tried to do more than we were able fully to accomplish and what we were able to achieve was not fully satisfactory to any of us. That, however, probably is as it should be, particularly in the field of education where we make much of continuous learning and striving toward an always unattainable perfection. In a sense, the worst possible outcome would have been complete realization of our every aim and objective, for then what would be left for us to do in the future? There never was any danger of that, however, and everyone who has been at all closely associated with CCD now sees more yet to be done than he did when his project was launched.

That, indeed, has been the most rewarding outcome of the five-year experience -- the stimulation of aspirations of persons and institutions. The Pittsburgh Public Schools and the University of Pittsburgh, the schools and colleges of the region, and their faculties and staffs are today aiming higher, trying innovations they would not have considered possible before, and mounting efforts that go far beyond anything they dared envision when CCD was launched. Directly or indirectly, CCD has contributed to this raising of sights, to the preparation and mobilization of persons and institutions for both more fundamental and more ambitious endeavors in educational progress.

If there is one thing that we hope others will find here, it is sufficient excuse to undertake school-and-university projects of educational improvement, however modest or unsophisticated they may necessarily be initially. One thing will lead to another, competencies will grow and resources will multiply after the first faltering efforts. Of this above all our experience has convinced us. Beyond that, we would hope that others will share their experiences as we try to do here.

CHAPTER II

Origins & Aims

Programs of school-and-university collaboration such as the one described here are an indigenous response to particular characteristics of this country's educational system.

This system is marked by great diversity and fragmentation. Not a single national government but the 50 states have principal constitutional responsibility for public education, and the states in turn have decentralized much of their authority to local community school boards. Parochial and other private schools operate alongside the public ones and in many communities rival them in numbers of students. Higher education is provided by a conglomeration of public and private universities, four-year colleges, community and junior colleges, technical institutes and other specialized institutions. The result is not so much a system as a complex in which control and direction are highly fragmented.

In addition, the educational enterprise in this country characteristically reflects another kind of division, that between school teaching as a profession and the rest of the realm of scholarship and science. Our history of normal schools and state teachers colleges has its carry-over today even on the campuses of our general colleges and comprehensive universities, where departments or schools of education tend to be ideologically isolated and the profession's "inbreeding" perpetuated. The consequence is that the operating personnel of most of our elementary and secondary schools and that of most of our institutions of higher education subscribe to different educational values, pursue more or less disparate aims, and provide students with instruction that often is discontinuous in content and methodology, in attitudes cultivated and values inculcated.

Therefore, both the institutional structure with its diversity and fragmentation of control and direction and the education profession with its division between elementary-secondary and higher education confront the able student with a difficult situation. The student himself has to piece together his total formal education, often with awkward gaps and duplications, discontinuities and contradictions in his preparation. This is especially true, of course, for the able student progressing to the higher levels of education -- from elementary to secondary to college and graduate professional study.

The reasons for the situation are apparent in our national history and its continued existence seems to be consistent with our pluralistic tradition and antipathy to unitary systems. However, its disadvantages are real and are difficult to ignore in an era when our increasingly complex society is making ever heavier demands on its educational enterprise. While resort to a monolithic national system of education or even to uniform state systems would be offensive to our ethos, neither is inconceivable if the institutions and personnel of the existing educational complex fail somehow to collaborate and to coordinate their efforts.

Recognition of the situation and appreciation of the need for voluntary cooperation between educational levels and among educational institutions has become quite general. This has been evidenced by the several inter-level national commissions for curriculum revision and by numerous inter-institutional endeavors in various parts of the country. Certainly there is no intent here to claim discovery of the situation or priority in attempting to improve it. However, the Upper Ohio Valley Region centering on Pittsburgh has had reason to become especially aware of the disadvantages involved in the situation.

The Upper Ohio Valley Region -- roughly Western Pennsylvania, Southeastern Ohio and Northern West Virginia -- exists as a socio-economic reality, based historically on the coal and steel industry and laced together by the great bend of the Ohio River and by its tributary Allegheny and Monongahela River systems. The region's nuclear city, Pittsburgh, is closer to and shares more with adjacent sectors of Ohio and West Virginia than it does with Central and Eastern Pennsylvania, across the mountains.

The region is distinguishable, too, by its educational characteristics. Its large Catholic population, not only in Pittsburgh but in many other communities, makes parochial schools a significant factor, alongside the public schools. Its private college-preparatory schools, while numerous, have not played the leading role those along the Eastern Seaboard have. Similarly in higher education, with both its scatteration of private "hilltop colleges" and complex of state colleges, the region is neither as private-institution dominated as areas east of it nor as public-institution dominated as areas farther west. Indeed, the region embodies in microcosm the educational diversity and fragmentation characteristic of the nation as a whole, so that its awareness of the problems has been acute. At the same time, the multi-state dimensions of the region make action under government auspices difficult and suggest voluntary association instead.

Such were some of the considerations that led to the establishment of the Regional Commission on Educational Coordination in 1958.

Regional Commission on Educational Coordination

In his inaugural address, University of Pittsburgh Chancellor Edward H. Litchfield had emphasized both the need to coordinate the educational programs for able students at all levels of our level-on-level or layer-cake system of education and the University's obligation to provide leadership for collaborative endeavors among the institutions of the region it principally serves. Early in his administration, therefore, Chancellor Litchfield took the initiative in setting up a voluntary, non-governmental association of representative educational institutions in the region. Called originally the Regional Commission on Interrelationships of Secondary Schools, Colleges and Professional Schools, it subsequently was broadened to include elementary schools and given the more manageable title of Regional Commission on Educational Coordination (RCEC).

The roster of individual members, of course, has varied over the years since 1958 with the number ranging from 14 to 22. Included at one time or another, besides representatives of the University of Pittsburgh, have been the following:

Three university presidents (Howard W. Jones of Youngstown University and successively Elvis Stahr and Paul A. Miller of West Virginia University).

Five private college presidents (Chauncey G. Bly of Thiel College, Greenville, Pennsylvania; Edward D. Eddy, Jr., of Chatham College, Pittsburgh; Howard Lowry of The College of Wooster, Wooster, Ohio; Boyd Patterson of Washington and Jefferson College, Washington, Pennsylvania; and Monsignor William G. Ryan of Seton Hill College, Greensburg, Pennsylvania).

Two state college presidents (Michael Duda of California, Pennsylvania, State College, and Eston K. Feaster of Fairmont, West Virginia, State College).

Seven school superintendents (Gertrude Barber of Erie, Pennsylvania; A. W. Beattie of Allegheny County, Pennsylvania; Ralph D. Horsman of Mt. Lebanon, Pennsylvania; Monsignor John B. McDowell of the Pittsburgh Diocese; and successively Earl Dimmick, Calvin E. Gross and Sidney Marland of the Pittsburgh Public Schools).

One schools association director (Maurice J. Thomas of the Tri-State Area School Study Council).

One private college-preparatory school president (George L. Follansbee of Shady Side Academy).

The University of Pittsburgh has been represented by Vice Chancellors Charles H. Peake and A. C. Van Dusen, who served successively as chairman, as well as John Geise, Vice Chancellor for Regional Campuses, Paul H. Masoner, Dean of the School of Education, and Harry B. Higgins of the Board of Trustees. Staff director of RCEC throughout the period covered here has been J. Steele Gow, Jr.

The Commission thus has been at least roughly representative of the principal kinds of educational institutions in the region, including public, parochial, and private preparatory schools, state and private colleges and universities. However, because its members were invited to serve as individuals, the Commission never has claimed to speak officially or authoritatively for either the directly represented institutions or for others in the region, relying instead entirely on persuasiveness of the persons participating. That has been ample for its purpose.

The Commission has met once or twice a year since 1958, frequently with consultants invited from elsewhere in the country and often with other staff representatives from institutions within the region. Between meetings, the Commission's staff has conducted studies on problems or issues which the Commission's discussions have identified as matters of common concern for both elementary-secondary and higher education institutions. Published reports on three of these studies will be mentioned later in connection with the Pittsburgh Curriculum Continuity Demonstration experience, but we must turn now to the Commission's early activities which spawned that project.

The Commission's first endeavor was to seek guidance on what our society's demands on its educational institutions were likely to be in the years ahead. At that time our educational enterprise, particularly the public school segment, was under a heavy barrage of criticism. The Russians had launched Sputnik I and this country had been shocked into general public awareness of the crucial importance and critical inadequacies of our provisions for education. The education profession was being bombarded with demands for reform from many quarters -- as Professor Peter Odegard put it, from the butcher, the baker and the submarine maker -- but many of these demands were emotionally charged, often inconsistent or contradictory, and seldom based on careful analysis of current facts or future needs. The Commission, therefore, set out to find its own more reliable guidance.

Its first step was to conduct a series of symposiums in which leaders in nearly all major fields of endeavor were asked to consider what appeared to them, from their varied vantage points in society, to be the emerging needs for educated persons. Five such day-long symposiums were organized, each focusing on a different broad area of concern -- on social relations, on economic affairs, on science and technology, on health, and on culture and values. The roster of each symposium included from 16 to 18 persons carefully screened from an initial list of about 500 persons recognized as leaders in their various fields of endeavor in the region. The process of selection and recruitment alone took three months, but virtually every person finally invited to participate did so.

Most of these symposium participants had no direct connection with or responsibility for an educational institution but occupied positions from which they had privileged perspectives on society's emerging needs. These included ranking executives of such corporations as Allegheny Ludlum Steel, U.S. Steel, Pittsburgh Plate Glass, Gulf Oil, Koppers, Pittsburgh Coke and Chemical, Gimbels, Bell Telephone, Mine Safety Appliance, Duquesne Light, Fisher Scientific, Nuclear Science and Engineering, Westinghouse Electric, H. J. Heinz, and Mellon and Peoples National Banks. They came from several leading law firms and from the courts, from labor unions, from various governmental departments and private social welfare agencies, from foundations and hospitals, from churches, museums, libraries, research institutes, and professional associations. They constituted, in short, a select cross-section of leadership and they were supplemented, in each symposium, by a few persons from educational institutions in the region, in order to keep their discussions relevant to the Commission's concern with education.[1]

The purpose of the symposiums, as was made abundantly clear to the participants, was to clarify what our rapidly changing and increasingly complex society required in the way of educated persons and what such persons would need to know and be able to do. They were not to tell educators how to perform their specialized function, not to redesign educational programs nor reform instructional practices, but to set out societal guidelines for the endeavors of education specialists to follow. The assumption was that formulating goals for education is a function of all society, best articulated by its leadership, but that translating these goals into programs and practices is properly the province of those specially trained for it. In general, the participants observed the distinction, perhaps because precautions were taken to see that they did so.

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[1] Complete rosters of the symposiums appear in Appendix A.

In the process of recruiting the selected participants, the staff conducted informal interviews and from these developed work papers for each of the symposiums, synthesizing preliminary views into suggested topics for discussion and elaboration. The day-long deliberations in the symposiums themselves were transcribed and an abstract prepared by the staff for circulation among the participants for revision. As promised from the beginning, remarks were not attributed to individuals but conflicting points of view were recorded and only what achieved consensus was reported as such. The proceedings, thus distilled, were published in 1959 under the title Today's Leaders Look at Tomorrow's Learning, by the University of Pittsburgh Press.

This 50-page pamphlet, together with the full transcript which also was reproduced, served as the principal guidance paper for the Commission's second phase endeavor, in which the region's education profession was called upon to inventory current programs and practices, analyze them in the light of the guidelines, and suggest courses of action to improve the effectiveness of education for the future.

The second phase was carried out by more than 400 educators from 8 universities, 25 colleges and 50 representative school systems in the region, all organized into 21 panels. Each panel focused on the complete learning continuum leading to a particular professional field or advanced discipline, and each panel included participants from all institutional levels -- elementary, secondary, college and graduate school. The panels in turn subdivided into study groups with specific assignments and reassembled periodically to review and integrate the work of the study groups.

The panels of educators functioned for the better part of a year, each producing a substantial report of observations and recommendations. These collected reports then were distributed among the participating institutions for their own use in program planning and also became the material for further analysis and deliberation by the Regional Commission itself. No formal publication of the panel reports was attempted in order to leave all free to continue the process of analysis through the direct inter-level, inter-institutional communication and collaboration that had been generated in the region.

Significantly the activities stimulated by the Commission to this point were carried out with minimal subsidization. Neither the community leaders in the symposiums nor the more than 400 educators in the panels received any compensation. The Buhl Foundation of Pittsburgh awarded the Commission a grant of $25,000 to support a one-man staff and to cover conference expenses, office and publication costs. The many educational institutions that had been involved, therefore, had little adjustment to make in continuing the inter-level and inter-institutional

communication begun in this way. Anyone familiar with the region before and after the Commission's efforts is aware of the improvement in communication of this sort.

Within the Commission itself, the symposiums and panel studies brought deliberations into sharper focus on two matters: (1) the need for greater curriculum continuity in the student's total formal education, and (2) the potential of inter-level, inter-institutional collaboration as a means for improving the effectiveness of education.

Dimensions of Curriculum Continuity

The Regional Commission found that the need for what it called curriculum continuity took several forms.

First, there was, as the Commission had recognized from the beginning, need to coordinate the instructional programs at one institutional level with those of the institutional levels above and below, so that students could move smoothly from one to the next. Recognition of this need had brought the Commission into being.

Second, however, the need was discovered for greater continuity within institutional levels, from grade to grade and from instructional unit to instructional unit. This would involve the ordering of knowledge and competencies to be acquired in such a way that learning would be optimally efficient and cumulative. And by learning the Commission meant the cultivation of values and the development of attitudes and habits as well as acquisition of specific content and skills.

Third, there became apparent both the need and the opportunity, as the sequencing of the substance of learning was improved, to enable students to depart from the customary lockstep progression, each progressing more nearly at his own best pace, so that he would experience continuously the optimal intellectual challenge to which he was capable of responding effectively. Especially the able students who had the potential to progress to higher education needed to move ahead as rapidly as they could, both to maintain their interest and motivation and to save time in their long tutelage for careers of leadership.

Fourth and finally, the Commission was impressed, by the symposiums and study panels, with the need for greater curriculum continuity in the sense of continuous modernization of content at all levels, including the most elementary, so that instruction would be as consistent as possible with discoveries made at the rapidly advancing frontiers of knowledge.

All of these the Commission comprehended within the term of curriculum continuity. While the several components could be distinguished from each other for tactical purposes, they seemed clearly to be parts of a whole that called for an overall strategy. All would require attention if the educational process were to be conducted with maximum efficiency and effectiveness and able students enabled to realize their full potential. Limiting the attack to one or another aspect of continuity would be largely self-defeating, since the gains won in one way would be dissipated in another. Tempting as a neatly manageable, limited objective approach might be, therefore, the Commission felt compelled to view the matter whole.

The view was formidable.

The problem of curriculum continuity, from this perspective, would require long sustained effort by a great variety of persons working in many subject fields and at all institutional levels simultaneously. The task, indeed, seemed impossible at first, but, as the Commission explored the matter further, its feasibility was enhanced by several considerations.

In the first place, the problem involved not all students equally but was especially acute for the academically able students who had the potential to progress to the higher levels of education. Therefore, it should be possible to concentrate attention on the curricula intended for the academically able and count on the influence of work done there to modify appropriately the other curricula in comprehensive elementary and secondary schools.

Secondly, not all subject fields were equally involved, since only a few really continued from the elementary through secondary level and on into college and graduate study. The crucial ones, in this regard, seemed to be English or language arts, mathematics, and natural sciences, the social sciences and history, and perhaps foreign language study. These at least constituted a solid core curriculum that reached across institutional levels, so that any significant improvement in the continuity thereof would have major effect on the total learning experience of able students.

Furthermore, curriculum reform had become a popular enterprise, and several national commissions, particularly in the natural sciences and mathematics, were producing models which incorporated much of what the Regional Commission sought. This meant that the Regional Commission's comprehensive approach to curriculum continuity would be able to draw upon and adapt the work of others in many cases. Indeed, as the model curriculum development movement spread to other subject fields and as competing groups appeared, the problem became in large

part one of synthesizing coherent educational programs out of proliferation of model components.

Still another dimension of the problem of curriculum continuity, however, defied the Commission's best efforts to find a feasible way of incorporating at the time. This would have involved conducting basic investigations of human growth and development and of the learning process in order to develop better governing principles for the ordering or sequencing of learning experience. The need for more specific and reliable guidelines of this sort was recognized but to have taken the time and invested the energies required would have put off far too long the possibility of having an impact on educational practice in the region. Therefore, the Commission reluctantly but deliberately decided to employ the best knowledge then available on these basic matters and to concentrate its attention for the time being on practical application to the problems students are facing every day.

Finally, and again as a concession to logistical realities, the Commission resolved to attack the problem not in all of the region's educational institutions simultaneously, but first in a pilot complex or system of institutions where the problem was manifest in representative, if not extreme form, and to rely on dissemination or diffusion among the region's other institutions. The Commission reasoned that, if the interrelatedness and inter-dependence of educational institutions in the region were facts and the facts were acknowledged, then a pilot demonstration in units of the region's largest school system and largest university should have the necessary impact. Accordingly, the Commission turned its attention next to the feasibility of such a demonstration.

Rationale for Collaborative Endeavor

Although the very establishment of the Regional Commission itself was an acknowledgement of the inter-relatedness of educational institutions in the region and recognition of their need to communicate among themselves, the mounting of a large-scale, long-range collaborative endeavor involving the commitment of substantial personnel and other resources was another matter.

As is well known, rivalry and jealousy of prerogatives often is most intense among neighboring educational institutions, perhaps because they are perforce so inter-related. There had been ample evidence of this from the Commission's beginning when one of the leading institutions of higher education declined to be represented apparently because its neighboring rival, the University of Pittsburgh, had taken the initiative in setting up the Commission. Furthermore, in this region as in others, there were ancient antipathies between the central city and its suburbs and between the metropolitan area and its satellite communities in the farther reaches of the region, and these had a way of being reflected through their respective public school systems.

In short, collaboration of the sort required would have to be based on mutual interests sufficiently compelling to overcome the centrifugal forces that had produced the fragmentation characteristic of the region's educational complex. The mutual interests also would have to be sufficiently compelling to bridge over the historic division between elementary-secondary education and higher education, with the former's strong reservations about being "dictated to" by the latter. Whether such mutual interests could be identified and would be acknowledged was a question the Commission had to explore candidly and in regard to which it had to formulate a rationale for collaboration.

Chancellor Litchfield already had given expression to the University of Pittsburgh's version of a rationale for collaboration when he said in his inaugural that Pitt recognized a responsibility for providing leadership for the improvement of educational quality at all levels throughout its region. This, of course, could be and to some extent in some quarters was interpreted as a thrust toward hegemony rather than an honest offer of collaboration. However, little probably could have been done by others without some such expression from the largest institution of higher education in the region and the one that provided the largest contingent of teachers and administrators for the elementary and secondary schools. As the University freely conceded, if it felt dissatisfied with the early schooling or even the college preparation of the students coming to it from the region, it had to point the finger of blame at itself as the source of one or more of the degrees of so many of the persons staffing the region's other educational institutions. By and large, therefore, Pitt's real interests to be served by collaboration were recognized.

What of the other educational institutions, though? Surprisingly, perhaps, a great many of them had responded with alacrity to the Commission's invitation to participate in the panel studies. Virtually all of the universities (8) and a substantial sample of the colleges (25) and school systems (50) had contributed considerable staff time to that Commission-sponsored venture. Apparently -- despite rivalries and jealousies -- these institutions recognized that each could improve its own performance more readily in concert and cooperation with others which were providing parts of the total formal education of the many students in whose learning careers they shared. The degree of cooperativeness or readiness to collaborate would vary, of course, some remaining relatively aloof and reserved while others were open-armed. However, in general the Commission's own early experiences suggested that there was more readiness than reserve and that, indeed, most of the institutions were simply waiting for someone to take the initiative.

Still, a large-scale, long-range venture such as the contemplated demonstration would require not only an institution of higher education such as Pitt but a large school system which truly welcomed an

opportunity to engage university scholars and scientists in the revision of its own curriculum. Fortunately, the Board of Education and Superintendent of the Pittsburgh Public Schools were actively cultivating such relationships. Dr. Calvin E. Gross was particularly interested in strengthening the academic programs in comprehensive schools and quite candidly was looking for help beyond the school teaching profession.

The Regional Commission, therefore, turned to the University of Pittsburgh and the Pittsburgh Public Schools as the logical institutions to undertake the proposed demonstration. The venture was agreed to in principle at a hotel dinner meeting of representatives of the boards and top administrators of the two institutions in 1959 and thus was launched the Pittsburgh Curriculum Continuity Demonstration.

The aims of the venture, in summary, were defined as being:

-- To modernize the content and improve the sequencing of learning experiences within and between institutional levels, in order to provide able students with a coherent educational continuum.

-- To encourage flexible progression of students so that each experiences continuously the optimal intellectual challenge to which he is capable of responding effectively.

-- To cultivate, by demonstration, the continuing practice of school-and-university collaboration as a means of maintaining continuity and quality in educational programs.

These aims, of course, were defined primarily for the Upper Ohio Valley Region but is was hoped that the demonstration there also would have influence beyond the region.

CHAPTER III

Organization & Operation

The Pittsburgh Public Schools-University of Pittsburgh agreement in principle left a great deal to be worked out before the Curriculum Continuity Demonstration (CCD) could be gotten fully under way. The first step, therefore, was to set up a temporary joint committee, with Pitt Sociology Chairman David Henderson as secretary. At once certain practical realities had to be confronted.

The stated aims of the CCD, for instance, could be realized to any substantial extent only over a considerable length of time. While no one at that time could tell with any certainty how long it would take to do how much, the decision was made rather arbitrarily to project plans for a five-year period. That at least would give the two collaborating institutions some idea of the duration of the commitment they were making. As it turned out, the five-year projection sufficed reasonably well.

The temporary joint committee also had to consider where in the Pittsburgh School System the initial field testing and demonstration should be conducted. On the one hand, Allderdice High School and certain of its feeder elementary schools were recognized to be the city's most academically oriented and to have the ablest student populations. On the other hand, a demonstration there, with its natural advantages, might not be persuasive with less favored schools. The decision was made, therefore, to use Schenley High School and its feeder Frick Elementary School, both of which had highly heterogeneous student populations, including about half Negro, and had most of the problems that other comprehensive schools faced. Frick and Schenley also were conveniently close to the University campus. Also included in the scheme was the University's own elementary Falk Laboratory School, together with the University's School of Liberal Arts (or college), School of General Studies (largely adult evening studies) and its complex of professional schools.

As regarded the more difficult question of personnel and financial resources to carry out the project, the temporary joint committee's efforts were less conclusive. It was apparent, of course, that the Regional Commission's concept of the project would require the participation of large numbers of persons from both collaborating institutions and that their time and other costs would require substantial outside financial resources to supplement those available from the institutions themselves. The joint committee, however, was unable to resolve this

set of questions and instead decided to turn the matter over to a joint board and directorate which would carry out the project.

Modest supplementary funds were needed, though, even to provide for a directing staff and to perform the detailed planning and preliminary activities which might generate the greater funds required for the project as a whole. Again the Buhl Foundation of Pittsburgh, which had supported the Commission, came to the rescue with a six-month $40,000 "seed money" grant. With this, the two collaborating institutions were able to replace the temporary joint committee with a continuing organization.

Inter-Institutional Structure

The organization of CCD, throughout its five-year span, has reflected the equal-partner status of the two collaborating institutions.

The Joint Governing Board, for instance, initially consisted of Pittsburgh Public School Associate Superintendents Evan Ingram and Marie Saul, University Vice Chancellors Charles Peake and A. C. Van Dusen, and Chairman William Rea who was a member of both the City's Board of Education and the University's Board of Trustees. Later the membership was expanded to include School of Education Dean Paul Masoner and Assistant School Superintendents Clair Cogan and Merwin Himmler, with Miss Saul retiring.

Director of the CCD throughout has been J. Steele Gow, Jr., who had served and continued to serve also as staff director of the Regional Commission. The rest of the staff at first consisted of two associate directors, Francis Rifugiato who was appointed simultaneously as vice principal of Schenley High School, and C. M. Lindvall, who also continued as chairman of the educational research program in the University's School of Education. Later Stella Nardozza, an elementary supervisor for the area including Frick School, was added as an associate director. Upon Miss Nardozza's death, supervisor Ann Bartley succeeded to that position and, upon Mr. Rifugiato's promotion to principal of another school, Norma Watters replaced him both at Schenley High and on the CCD staff. In the administrative staff also, therefore, the two collaborating institutions were represented throughout.

The Joint Governing Board met rather frequently during the early phases of the project, sometimes monthly while the program plans and operating procedures were being worked out. In later phases the Board met less often, serving more or less as a review body for progress reports from the staff, while technical issues and problems of implementation were referred by the staff to two other, more specialized groups.

One of these other groups was the Operations Advisory Committee, consisting of such key School System and University administrators as the pilot school principals, the directors of guidance, of curriculum and research and of elementary and secondary instructional services in the schools, the president of the University Senate and several department chairmen of the School of Education. This Operations Advisory Committee met monthly to discuss and to advise on specific problems of implementation. Members of the Joint Governing Board were regularly invited and did attend as their time permitted. In a real sense, this Committee relieved the Board of much of the detailed, technical task after the CCD program's outlines were shaped and its operation was well under way.

Another group serving a specialized function was the Science of Learning Council. Its principal purpose was to provide ready access to the many parts of the University where scholarly knowledge and technical competencies relevant to CCD's mission were to be found. The purpose was served both through regularly scheduled meetings in which particular curriculum issues were discussed and through individual members' help in recruiting appropriate University personnel for the CCD's tasks. The membership roster ranged in number from 20 to 40 persons and included key persons from such varied parts of the University as the Schools of Medicine, Public Health and Social Work as well as Education, Western Psychiatric Institute and Child Guidance Clinic, the Departments of Psychology, Sociology, Mathematics, History, English, Romance Languages and several other natural and social sciences.

As the components of this organizational superstructure developed, they were drawn together administratively into what became known as the Coordinated Education Center (CEC) with responsibility both for conducting the Pittsburgh Curriculum Continuity Demonstration and for furthering such spin-off projects and programs as that central endeavor might produce or assist.

The Coordinated Education Center, as an administrative entity, was headquartered on the University campus close to the City's Board of Education Building and convenient to the Frick, Falk and Schenley pilot schools as well as to the University units involved in the demonstration. The quarters for central office staff as well as workrooms for the task forces and the facilities for field-testing and demonstration all were contributed by the two collaborating institutions.

Paid personnel for the organization so far described included only the full-time director, first two and then three half-time associate directors, secretarial assistance, and -- on a per diem basis -- members of the Operations Advisory Committee. The Joint Governing Board and the Science of Learning Council members all served without compensation.

As should be apparent from what has been said, the CCD program and the administrative entity set up for it not only have been inter-institutional in organizational structure as well as conception, but have tapped into both collaborating institutions at many points. The intent, of course, has been to make the endeavor as much as possible a part of both institutions rather than a separate, isolated undertaking which, upon its formal termination as a project, would leave little impress behind it. In other words, the organizational structure itself has been designed, through the involvement of a large number of key persons, to cultivate the practice of inter-institutional collaboration on a continuing basis.

There is no question in the directors' minds that this organizational structure could have been simplified and operations made less complicated and nothing been considered but the immediate job of producing curriculum revision. However, despite occasional impatience with the complex structure, even in retrospect the provisions for widespread involvement seems to have been amply justified.

Inter-Level Participation

A guiding principle for all CCD operations has been that of inter-level participation. That is to say, a joint team or task force assigned to develop curriculum for a particular level has included persons from the levels above and below as well. The purpose, of course, has been to foster curriculum continuity by assuring that each task force be aware of what preceded and what followed its segment of continuum.

These joint teams or task forces have done the real work of CCD, functioning under the general direction of the staff and with the guidance of the superstructure previously described. Approximately 450 persons have participated, about three-fifths of them from the teaching, counseling and supervising ranks of the Pittsburgh Public Schools and about two-fifths of them from the University's faculties. While the size and specific composition of the task forces have varied according to the different requirements of their particular tasks, the principle of inter-level participation has been adhered to consistently.

The CCD at first focused its attention on the high school curriculum. This was done despite the obvious arguments in favor of beginning at the earliest grades and working up year by year or, to the contrary, of starting at the highest level and working down. The reasoning, however, was that guidelines for the entire continuum had been developed through the symposiums and panel studies and each segment of the curriculum should be considered to be in a continuous process of revision, partly to accommodate changes occurring in the segments above and below. Therefore, CCD's efforts might be concentrated initially at whatever level seemed expedient at the time.

The advantages to be realized by starting at the high school level were principally two. First, most of the model curriculum development being carried on by national commissions at the time was at the secondary school level or was most advanced at that [illegible], so that CCD task forces could make appropriate use of much that was immediately available. Second, the high school curriculum, as [illegible] or less the mid-section of the continuum, could command more readily the concern of persons ordinarily operating at levels above and below it than could either the primary grade or higher education curricula. This latter consideration was especially compelling in the early period of CCD when the rationale and justification of inter-level collaboration had yet to be established in the minds of many school teachers and university professors.

Indeed, considerable scepticism and suspicion had to be overcome in each inter-level task force before real work could be accomplished. Many of the public school personnel suspected that the university professors would have their own axes to grind and would disregard the practical requirements of a comprehensive high school program. The professors in turn harbored doubts about the academic values of school teachers and the possibility of significantly modifying substantive content or instructional practices. The school people were fearful of being dictated to and the University participants were wary of being used as ineffective window dressing. A few -- a very few -- never were able to overcome these initial attitudes and had to be replaced, but the great number soon learned under pressure of working together on a common task that their doubts and fears were unfounded. Virtually every joint task force went through a period of arms-length sparring, some taking only a few days and some several months, but eventually each inter-level group became an effective working team.

Recruiting of personnel from both the Pittsburgh Public Schools and the University was done with some care. The CCD staff worked closely with the administrators and supervisors of the school system to select the teachers who were to be invited to participate; and they were invited rather than assigned. Their participation, however, had the endorsement of their superiors. Similarly, within the University, deans and department heads were consulted in the selection of professors and approved their participation. Both the school teachers and the professors had to be and were assured that their participation in CCD task forces would be weighed in consideration for career advancement. This assurance soon became persuasive when several participating teachers were promoted to supervisory rank and several professors achieved tenure largely because of their CCD activities. Within the first year or two, invitations to participate in task forces became much sought after as a recognition of special merit.

Task force participants were compensated according to the magnitude of the task, the number of persons sharing in the task and the estimated time each would be required to devote to the task. The procedure generally was to call together the selected participants for an organization meeting at which the demands of the task were discussed, a timetable roughed out, and the terms agreed upon. Not infrequently the demands were underestimated and the time required proved greater than anticipated. In such cases, adjustments in the compensation were made as work on the task progressed; and in every such case the modifications were agreed to without difficulty. This procedure was made necessary by the fact that all CCD task force participation was on a personal over-time basis rather than on a release-time basis, as will be discussed later.

The composition of the task forces, of course, varied according to the nature of the task. Typically, those working on the high school curriculum consisted of two teachers and a supervisor for the schools and two professors from the University. Always one of these teachers was the person who would introduce the new course in the pilot school, Schenley High, and frequently one of the professors would work with the teacher in the first field-testing year. Task forces working on the elementary curriculum were larger as a rule, because they worked not on courses but on several years' sequences, but the representation was similar in proportion. At the higher education level, the proportions were reversed, with a majority of professors working with a minority of school persons.

First a specialized task force, usually designated a steering committee, was set up to examine the relevant guidelines and recommendations of the symposiums and study groups, and to sketch the outlines of a major segment of the curriculum -- the high school social science and history sequence or the elementary foreign language sequence, for instance. Then members of this group would be reassigned to particular tasks required to flesh out the outline and they would be supplemented by other persons selected for those particular tasks. In addition to the regular members, a task force often employed numerous additional persons as consultants and, as the work progressed and the need became apparent, new members sometimes were added from the roster of consultants.

Because of the difference in organization and operation of elementary and secondary school curricula, task forces focusing on these levels differed in one significant respect. An elementary task force ordinarily consisted of 15 to 30 persons and took responsibility for the entire segment of the continuum from kindergarten through eighth grade in one subject area. However, the task force would subdivide, usually into primary, intermediate and junior high units, for much of its work,

reassembling as a whole to review the product of the units. Secondary curriculum task forces instead usually completed a first-year high school course and then, with some change in personnel, moved on to the second, third and fourth years. The secondary-level, subject-specialist supervisors, plus other carry-over personnel, provided for the continuity within that level.

The continuity for the whole kindergarten-into-college continuum was provided not only by the over-all guidelines but by the participation of some of the key persons at more than one level. For instance, a high school mathematics specialist would work with the elementary and college curriculum groups as well as with the high school group; or a University French professor would work not only at his own but also at the secondary and elementary levels or, less frequently, an elementary teacher strong in social studies or language arts would help with the higher level curricula in those fields.

In summary, then, the task forces which carried out the real work of CCD were rather consistently inter-level in composition. As the work expanded downward to the elementary and upward to the college curriculum, the inter-level participation initiated in the high school work was elaborated without serious difficulty.

Implementing the Intent

The intent of the Regional Commission and of the two institutions which undertook the pilot CCD project was to do more than develop curriculum models. It included also establishing the practice of inter-institutional, inter-level collaboration. This had a great deal to do with shaping the process of implementation.

Those planning the project reasoned, first of all, that the aim had to be to modify personal attitudes and professional behavior patterns. Therefore, implementing the project by institutional fiat and authoritative direction would defeat its purpose. Only if the persons administering, supervising, and teaching in the schools and in the university made the practice of collaboration their own would it become truly effective and continuous. As a consequence, implementation involved a minimum of official pressure. This meant not only that no one ever was ordered to participate but that no one, except the directors, were given any released time by their institutions. All participation was on personal time and on terms arranged with the individual. It means also that field testing in the designated pilot schools and dissemination from there to other schools had to proceed by persuasion and by the capability of the program to sell itself to the individual school administrators and faculties. No school or part of the University ever was directed from above to implement the program.

Unquestionably the CCD-developed curriculum materials, instructional practices, and student progression procedures could have been produced more quickly and instituted more uniformly had a more authoritarian approach been employed. However, the conviction was from the beginning and is in retrospect that such an approach would have worked against the larger purpose. The immediate, concrete and readily observable products might have been even more impressive but the less tangible outcome of changed attitudes and behavior patterns probably would not have accrued. Any particular curriculum content or design is bound to become obsolete rather quickly unless the process of continuous updating and adjusting is established in the minds and professional practices of the persons who man the educational enterprise.

In Chapter Five, some evidence of the long-range advantage of this approach are considered. In the short run, on the other hand, this approach required considerable patience and a high tolerance for temporary frustrations and irritations. Only by planning the project initially for the long haul and by referring back regularly to the overall plans were the Joint Governing Board and the CCD directors able to muster the patience and tolerance required. Only by adapting to the realities of the situation as it existed in Pittsburgh at the time and by compromising divergent views among all the persons involved was it possible to carry the project to completion.

Among other things, this meant that the traditional grade structure of the schools had to be accepted and subtly worked around in order to provide for the flexible progression of students' learning. It meant that University concepts of admissibility to college study had to be observed and arbitrary requirements satisfied. It meant that implementation had to be geared to operating budget limitations, to instructional materials replacement schedules, to shifts in faculty assignments, and to changing student populations and the intricacies of class scheduling. None of these factors nor many others like them were made subject to CCD control.

Fortunately, the Buhl Foundation's six-month "seed money" grant enabled the CCD to set up several of the high school curriculum task forces and to demonstrate that something effective could be done. This in turn convinced the Fund for the Advancement of Education that, with sustained financial support to supplement the available funds of the two collaborating institutions, the CCD had the potential to realize its larger purpose of cultivating the practice of inter-institutional, inter-level collaboration.

The FAE, an affiliate of the Ford Foundation, first awarded a 14-month grant of $125,000 effective May 1, 1960, and later awarded a grant of $380,000 to carry the project through 1964. An extension of

several months, without additional funds, was approved to complete some of the elementary curriculum, so that the project officially terminated on July 1, 1965. Approximately $545,000 of supplementary grant funds went into the project directly and, as will be seen later, spin-off or related projects generated substantial additional funds.

Supplementary grant support, averaging better than $100,000 a year directly to CCD, obviously was a major factor and raises the obvious question of whether the project therefore is an artificial one and its momentum incapable of being sustained. The best answer perhaps lies in the record of far greater sums now regularly attracted into the community for continuing inter-institutional, inter-level collaborative endeavors -- the Learning Research and Development Center's $1,000,000 a year operations and the many millions channeled into Pittsburgh Public School-sponsored projects. The collaboration practices and the many experienced collaborators produced by the CCD undoubtedly constituted an important condition for such continuing input.

None of this was assured when CCD began, but outside support accrued and continues to accrue as work progresses and as the joint working relationships prove their effectiveness in getting at major problems in education. Through the early 1960's, therefore, the CCD was laying solid foundations for much that has since developed as well as carrying out its specific assignment of developing and demonstrating improved curriculum continuity.

The component parts of that specific assignment and the concrete results will be described next, without attempting to detail the order in which each of the many tasks were taken up and completed. Later, in Chapter Five, more will be said about achievements in pursuit of the larger, less tangible purpose.

CHAPTER IV

Production & Demonstration

The most tangible output of CCD has been a "five-foot shelf" of mimeographed course syllabi, study guides, pattern drills, readings, and other instructional materials for use with academically able students from kindergarten into college. The sheer bulk of this material, as it has accumulated from five years of work, is impressive. However, the sponsors of CCD never have intended to rest their case on this evidence evidence -- and for two very good reasons.

First, instructional guides and materials, however well designed and developed, are only as effective in practice as the teaching personnel care to make them. That is to say, the written product of a curriculum revision program is no more than a tool or instrument, and its practical impact depends on the persons who are called upon to use it. Recognition of this, of course, accounts in large part for CCD's involving in the development process such a large number of the persons who would have the responsibility for actually using the material with students. It accounts also for the need to work over and adapt locally the model materials prepared by the national commissions. In other words, the concrete material product of a curriculum development project has to be considered only part of the outcome.

Second, whatever the form and substance of the written material at any given time, it soon will be out of date and inadequate as the frontiers of knowledge advance, as society's and the individual's needs for knowledge and competencies change, and as modifications continue to be wrought in other segments of the educational continuum. In short, there can be no such thing as a finished product in the curriculum development process. Therefore, the evidence is always incomplete when judging a curriculum project by its material output as of any particular moment.

With these reservations in mind, however, an account of the products of the CCD program is useful and indeed necessary in order to explain the program as a whole. At least in the strategy employed by CCD, changes in professional attitudes and practices and the establishment of continuing collaborative processes are accomplished not by exhortation but by experience in working at specific concrete tasks. The intangibles are achieved as intended by-products of the development of certain material products -- that "five-foot shelf" of mimeographed instructional guides and materials.

Therefore, while the material output of CCD ought even now to be considered already obsolete, and while the less tangible by-products ought to be considered more important for the long run than the concrete products themselves, the character as well as the process of material development and demonstration need to be considered in rendering a full account of the CCD.

Course Syllabi and Study Guides

The subject fields in which material has been prepared are: (1) English or language arts, (2) social sciences and history, (3) mathematics, (4) natural sciences, and (5) French as a sample foreign language. Material for all of these begins at kindergarten, except French, begins at fifth grade, and continues through high school into college.

English constituted the largest single task, in terms of both numbers of persons participating and volume of material produced, as might be expected from the basic importance of that subject to all others and from the number of competencies comprehended -- reading, writing, spelling, speaking and acquaintance with literature.

For the elementary (kindergarten through eight grade) segment, the English sequence employed a thematic approach with specified levels of competency rather than grade levels, so that students would be able to progress at varying rates. The instructional guides were organized with a color scheme by which a teacher could readily identify a particular theme's several levels and teach the same theme at the same time to students performing at several levels. The guides included suggestions for instructional materials and learning activities for each level on each theme, together with behaviorally defined objectives of increasing complexity and difficulty for each competency being cultivated. Sample questions or assignments for evaluating an individual's progress and guiding his advancement through the sequence also were included.

A ninth grade course, with strong emphasis on composition skills, was designed to pick up the elementary students whenever they were ready for it and point them toward a non-graded, three-year sequence in high school. This transitional course could be taken by advanced seventh or eighth graders in their own elementary school or, if only a few were ready for it, at the nearby high school on a part-time basis.

The students then were provided with a three-year sequence for which classes were made up of tenth, eleventh and twelfth graders. These students instructed each other to a considerable extent under the teacher's guidance, and each studied at his own level within a given year's part of the three-cycle program. As seniors graduated, freshmen were added to each class for the next cycle, so that all students

experienced all three cycles in due time. Students who progressed more rapidly than most through the elementary and secondary sequences could begin college-level study early by enrolling part-time at the University for credit in regularly constituted college classes.

The curriculum in social science and history followed a similar pattern in that it was theme-oriented and competency-level structured throughout the elementary segment. In social studies, however, specification of competency in behavioral terms proved to be extremely difficult but essential in order to get away from the delusion of "covering" a topic. In part to help overcome this difficulty, a conference of experts was convened and a pamphlet published on the subject of defining educational objectives.[2] Chapters were prepared by Drs. Robert M. Gagné, Robert Glaser, David R. Krathwohl, C. M. Lindvall and Ralph W. Tyler. This and The Taxonomy of Educational Objectives, edited by Dr. Benjamin S. Bloom (Longmans, Green, 1956) were used in seminars for the task force participants. Fortunately, the task forces in this subject area worked about a year ahead of the others and, in solving this problem of defining objectives in behavioral terms for their very difficult area, paved the way for more expeditious performances by other subject area task forces.

In another way also, the social science-history task forces showed the way. A panel of subject-specialist scholars was set up to consult with the task forces on the intrinsic requirements of the several disciplines (sociology, political science, economics, geography, anthropology, social psychology, history, etc.) into which branch what are known at the lower school levels as social studies. One result was a master chart of themes, learning sequences and competencies for all levels of the elementary segment, so that provision of the necessary preparatory understandings and skills for this multi-faceted field could be assured of proper attention.

For the secondary segment, a ninth grade transitional course known as Introduction to the Social Sciences was prepared with emphasis on the "discipline of the disciplines" making up the social sciences and history. This led then into a series of specialized courses in (1) world cultures, (2) American history, and (3) government and economics. Again, high school students who progressed rapidly and showed special aptitude were enabled to enroll for college-level courses at the University in a variety of social sciences or history.

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[2]Defining Educational Objectives, C. M. Lindvall, ed., University of Pittsburgh Press, 1964.

The task forces in mathematics and the natural sciences faced a somewhat different set of circumstances than the two preceding subject-area task forces. Not only were their subjects more readily recognized as sequential but a good deal more had been done by national commissions to develop model curriculum patterns. Their task, therefore, was more a matter of appraising the various models and reworking selected ones to adapt them and to prepare teachers to institute them.

In mathematics, the School Mathematics Study Group (SMSG) material was favored and this became the core of the mathematics program for CCD. Since the mathematics reform movement was only then having an influence on the region, a special study of its impact was conducted and a pamphlet published on the results.[3] Since neither SMSG nor any other "modern math" program was complete for elementary as well as secondary levels, the task forces had to devise a good deal of the material themselves, particularly at the elementary level. However, the philosophy terminology and methodology of SMSG shaped the entire CCD sequence.

In mathematics perhaps more than any other subject area, the need was for retraining teachers along with redesigning the curriculum. The CCD curriculum development process itself, of course, helped in this regard for the school teachers directly involved. However, it also was necessary to organize seminars, institutes and workshops (with supplementary support from the National Science Foundation, National Defense Education Act, Esso Foundation, Shell Foundation and Edison Foundation) in order quickly to prepare the larger number of teachers who would have to implement the material if the highly sequential curriculum was to be successful.

Similarly, in the natural sciences, examination of the various national commissions' model development led to CCD adoption of the Biological Science Curriculum Study, the Chemical Bond Approach and Physical Science Study Commission materials for reworking and adapting to local needs. Again, the teacher-retraining achieved through the reworking had to be extended to many more teachers at the secondary level through special seminars, institutes and workshops, and the elementary science sequences had to be developed to feed smoothly into the new secondary courses. The redesigning of kindergarten-through-eighth grade science proved to be the most time-consuming of all CCD tasks to carry out, perhaps because of the problem of communication between University scientists and elementary teachers and the rather radical shift from description to analytical thought process development that was involved.

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[3]The "Modern" Mathematics Movement: Its Impact on Schools and Colleges, J. Steele Gow, Jr., C. M. Lindvall, and Melvin N. Vesely, University of Pittsburgh Press, 1962.

In the foreign language field, still other special circumstances helped shape the CCD program. Previously experimental programs of elementary school foreign language instruction had been conducted with mixed results. Where, and as long as, competent teachers could be provided for a continuous program, the results had been gratifying. However, sporadic instruction of the sort possible in most schools had produced little, and the prospect for supplying competent, continuous instruction for all schools from kindergarten through high school seemed hopeless. Therefore, the decision was made to begin at fifth grade, the earliest level from which it seemed to be feasible to make instruction continuous. Also, the so-called oral-aural approach was then becoming favored and electronic language laboratory equipment was becoming available. Another decision was made, therefore, to concentrate on developing pattern drills and tapes as well as on designing study guides and course syllabi.

These decisions in regard to French curriculum had both intended and unintended consequences. Both decisions, of course, facilitated dissemination beyond the pilot schools, the first by keeping the program feasible for all schools and the second by making CCD the program best fitted for the language labs as those were installed in one school after another. This much was intentional. Quite unintentional, but gratifying, was the effect of the pattern drill and tape preparation in developing expertise in programming for verbal behavior which promises to be transferrable to certain problems in remedial English as well.

This last has led to one of several projects or tasks not included in the original conception of the CCD program. The foreign language professor who led in the development of French pattern drills and tapes was teamed with English specialists to develop similar instructional materials for correcting gross speech errors among socially disadvantaged but able students who knew better intellectually than they habitually practiced in their speech. Sample materials for use at junior and senior high levels have proved promising, but the development of a full set of materials will have to be left to a follow-up project outside the CCD.

Another task taken on along the way was the development of an instructors handbook and instructional materials for presenting structural linguistics as part of the English curriculum at both elementary and secondary levels. Field testing of the curriculum revealed inadequacies in the preparation of most instructors trained in traditional grammar, so that special material was necessary if the study guides and syllabi were to be used effectively by them. Similarly a handbook for using effectively the new electronic language laboratories had to be developed.

At the college level, CCD was fortunate in having the University already engaged in a comprehensive curriculum review and revision, so that CCD could concentrate its limited resources on those aspects of the college curriculum that were undergoing change because of changes at the pre-college levels. These have included the development of new placement-testing instruments in mathematics and foreign language, two subject areas in which radical changes in approach have been made at the lower levels. Also included have been new intermediate foreign language (French and Spanish) courses fitted to the needs of students with more than four years of pre-college language, and mathematics courses for those with modern mathematics preparation.

In the School of General Studies (largely adult evening classes) another special problem was identified as work on the pre-college curricula proceeded. The problem was with students who had interrupted their education to work for several years before continuing on to college and then found that their preparation was outmoded by the newer designed high school curricula in the social sciences and humanities quite as much as in mathematics, the natural sciences and foreign languages. Therefore, several courses in the social sciences and humanities were developed to facilitate their re-entry into formal education and their transition to the modern curricula.

Such has been the core material output of CCD -- continuous curricula in English, social sciences-history, mathematics and natural sciences from kindergarten, and in French from fifth grade, into college, including study guides, course syllabi, instructional materials and teachers handbooks as required. The substantive content has been modernized, the instructional methods updated, and the continuity improved to eliminate awkward gaps and duplications in the students' experience. In the process, the curriculum has been so ordered and sequenced that the prerequisite condition prevails for enabling students to progress in their learning at individual rates, the aspect to which we now turn.

Continuous Progress Practices

As a companion aim to that of modernized curriculum continuity, the CCD has sought "to encourage flexible progression of students so that each experiences continuously the optimal intellectual challenge to which he is capable of responding effectively." The extent to which CCD has achieved this objective, however, is more difficult to determine than in the preceding case of curriculum materials development. The project staff has been less satisfied with this aspect than any other, even though the circumstances limiting innovation are understood.

Early in the operation of CCD it became apparent that the public school system could not consider converting to a non-graded structure. At the elementary level, for instance, an early planning committee had

designed a rather radical scheme of spiraling sequences that did away entirely with grades and annual promotion and substituted continuous progress through successive levels of competency. The scheme excited considerable enthusiasm among the committee members and the project staff, but was coolly received in higher school administrative circles. Since CCD was to function in regularly operating schools and be subject to city-wide regulations and requirements, non-grading for the able students following CCD curricula would have been too disruptive of the comprehensive, heterogeneously populated schools involved. The scheme, therefore, had to be abandoned.

One consequence of this was that the Falk Laboratory School found less of value to it in CCD and virtually withdrew as far as serving as a pilot school was concerned, even though individual faculty members continued to serve on CCD task forces. Falk deemed itself already more flexible than the CCD could hope to make its program for the public schools.

Another consequence was that CCD had to adopt a highly pragmatic approach to the aim of encouraging flexible progression of students, making innovations where and when they could be made and -- for the rest -- being satisfied to establish the prerequisite conditions. This meant improving curriculum continuity and giving teachers the tools to advance students' learning flexibility within the grade-by-grade structure; that is to say, it meant relying on the grade-designated teacher's ingenuity to teach below or above grade level as individual students progressed at different rates in their learning, using the new continuous curriculum as a guide. This prerequisite condition has been established but how much advantage of it teachers will take remains to be seen. So far, a few seem to be using the opportunity well but more are not, which probably was to be expected as long as the grade-by-grade structure exists as an implied directive to limit flexible progression.

On the other hand, the CCD has achieved several significant break-throughs at critical points in the continuum where flexible progression innovations found a welcome. These have occurred mostly between high school and college levels.

The Advance Placement program of the College Entrance Examination Board was being instituted in the Pittsburgh Public Schools at this time in a cooperative project with Carnegie Institute of Technology. Through the CCD, the University of Pittsburgh instituted a policy of accepting for credit as well as advanced placement all AP applications with scores of 4 or above (on AP's five-point scale), with 3's to be decided by departments upon analysis of individual tests. Since Pitt

received more of these applicants than any other one college in the region, this policy helped to establish AP quickly and gave the Carnegie Tech-sponsored AP teacher-preparation program needed support.

The AP program, however, was inapplicable in many of the city high schools which had only small proportions of exceptionally able students and found it economically unfeasible to organize the special classes. Schenley, which was CCD's pilot high school, was one of these. Some alternative was needed that would meet the needs of the few exceptionally able students in such schools without the expense of special AP classes.

CCD's answer was to arrange for these individual able students, in their junior and senior years in high school, to enroll for regular college classes at the University on a part-time basis, usually the first or last period of the day, while they continued to complete their high school studies. At first, as an experiment, blanket tuition exemption was granted. Later tuition scholarships were awarded on the basis of need, but almost all Schenley students qualified on this criterion. Eventually the practice was opened to student from any high school in the city or outside it, where the student found it possible to commute.

From five to fifteen Schenley students have been taking advantage of this program each year and most of them succeeding admirably. The grade average for the first three years' groups was B+ and only one student had a failing mark in any college course. As many as 12 credits were accumulated by individual high school students in this way and applied to their college programs, at Pitt or elsewhere, when they matriculated.

For still other exceptionally able students who found it impossible to commute between high school and college daily, an early admission program was instituted. Students who had completed their junior year of high school were admitted directly to the University's college and their programs there so arranged as to satisfy any unmet requirements for high school graduation. These students received their home high school diplomas with their former classmates upon successful completion of their freshman year of college.

In this program also, the able high school students did very well, scoring a composite B+ average, winning numerous honors awards and participating to at least a normal extent in extra-curricular activities (from Greek Week Queen to tutoring service director). Chances of success were maximized by careful screening of applicants not only for academic ability but for social and emotional maturity, which has proved to be especially important in CCD's experience.

The early admission students often needed scholarship assistance since family planning for college costs had not anticipated the year's difference. A special scholarship fund was established for them with support from the Sarah Mellon Scaife Foundation.

These provisions for flexible progression from high school to college and some of the in-school practices were evaluated and reported in a pamphlet.[4] Almost from the beginning these practices spread beyond Schenley High School and even the city to include all areas from which the University drew substantial numbers of students. Together with AP, they constituted a varied arsenal of means for meeting the needs of able students at the critical high school-to-college transition point.

A related program, assisted by CCD, has sought to challenge able students with special interest and aptitude in science and mathematics. This has been the Cooperative Science Research Program, sponsored initially by the University Medical School's Addison Gibson Laboratory and later operated through the School of Education. Supplementary financial support for the first several years came from the National Science Foundation, but later the program was supported locally by the Pittsburgh Foundation, Buhl Foundation and the participating local school systems.

Students for this program are selected by high school science teachers, screened by the University staff and then enrolled in a spring series of Saturday seminars with leading scientific researchers from the University's schools of the health professions and science departments. Several hundred participate each year in this phase. These students then are invited to prepare tentative research protocols of their own, usually related to some on-going research at the University, and the better ones are selected for participation in a summer training program in research techniques. The summer program includes work at the University ecology field station at Pymatuning Reservoir. With consultation from University scientists, the high school students complete their research protocols and begin the research which is then continued through the school year at their own high schools. Animals and experimental equipment, as well as consultation, are provided through the University.

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[4] Meeting the Needs of Able Students Through Provisions for Flexible Progression, C. M. Lindvall, J. Steele Gow, Jr., and Francis J. Rifugiato, University of Pittsburgh Press, 1962.

This cooperative Science Research program, besides stimulating interest and developing skills among students who need an extra challenge, has produced considerable usable research data for University scientists. Its greatest contribution, however, may prove to be demonstrating another pattern of school and university collaboration which could be applied in fields other than science. Certainly it has shown that able high school students, concentrating in areas of their special interest and aptitude, are capable of doing not only college but even graduate level work.

Therefore, despite its failure to break away completely from the grade-by-grade organization of schools, CCD has succeeded to some extent in its mission of encouraging flexible progression of students. As will be indicated in Chapter V, other programs and projects growing out of CCD now are getting at this problem in still more fundamental ways.

Field Testing in Pilot Schools

The CCD instructional materials and practices were field tested in the pilot units as soon as each secondary school or college course or elementary school sequence was completed by a task force. Because task forces were set up first on high school curriculum, field testing began there and later was carried on at the elementary and college levels. In the 1965-66 school year, for the first time, all components of the CCD program were being implemented, some at the elementary level for their initial field testing and others at the high school level for demonstration of the second or third revision.

In CCD's method of operation, field testing and the revision of materials and practices on the basis of such experience are integral parts of the curriculum development process. That is to say, after the broad guidelines have been developed and after the task force has drafted the course syllabus and prepared the instructional materials, the process is continued through trial implementation, systematic evaluation and revision. When the course or sequence appears to be performing satisfactorily, the field testing becomes also a demonstration intended to encourage dissemination. However, the other units to which the material is disseminated become part of the field testing and their experience is pooled to guide further revision. There is, in short, no point at which curriculum development is considered finished. Rather curriculum development and implementation become a continuous process.

For the above reason, the CCD study guides, course syllabi, instructional materials, etc., always have been mimeographed and treated as temporary versions subject to change. The successive

versions, after reasonable success has been measured in pilot practice, are made available to other schools for their use, but not as finished products. Implicitly through the mimeographed form, as well as explicitly through responses to requests for the CCD materials, the continuous development process is made clear.

The initial field testing at Schenley High School pointed up many of the problems of implementation, evaluation, revision and demonstration which have since been confronted at all levels of the CCD program, and the techniques developed there have since been employed elsewhere, so that certain of the experiences at Schenley can be used to characterize the program as a whole.

Frequently the first attempt to implement a new course designed by a CCD task force required the help of more than a single teacher. This was true even though, as mentioned earlier, the teacher who was to introduce a new course always served on the task force and thus participated in its design and development. Therefore, a University professor or another high school teacher or supervisor would work with the classroom teacher the first year. In one case (the new geometry), a University professor had charge of the class while the high school teacher observed and received further training in order to take over the class the second year. More often, the regular teacher was supplemented by a professor or others from the task force for the first year. In the non-graded high school English, for example, a linguistic scientist and a composition specialist from the University, as well as an English supervisor from the School System, all helped supplement the regular teacher who also was given compensated time over two summers to further his own preparation.

As quickly as possible, however, each new course was revised into a form in which any reasonably well prepared teacher could implement it. The revision would include, as experience with it might suggest, anything from clarification of the syllabus wording through selection or preparation of new instructional materials to almost complete redesign of the course. In one case (Introduction to the Social Sciences), the first selected materials proved too costly for practical use. In another case (biology) the course had to be redesigned three times. In still other cases, teachers manuals (in structural linguistics, and in electronic language laboratory operations) had to be developed or special teacher-preparation workshops had to be conducted. By such means, however, each course was revised into readily usable form at Schenley before it was released even for further field testing at other high schools in the city or elsewhere.

A crucial part of the field testing, of course, was the systematic evaluation of the courses' effectiveness. This was needed for at least

three purposes: (1) to guide the continuous revision process, (2) to determine whether or how well the new courses achieved their particular objectives, and (3) to assure school authorities, parents and others that students taking the new courses were not missing something important they would have gotten from standard course offerings. Dr. C. M. Lindvall of the CCD staff had particular responsibility for designing the necessary measurement instruments and has reported elsewhere[5] on the techniques employed.

Generally, three kinds of evaluation were employed. First, recognized authorities in particular subject areas were retained as consultants to examine the materials, observe their use in the pilot school, interview teachers and students, and render subjective appraisals to the staff and task force members. Second, new task forces were set up to reformulate the objectives which each original task force had in mind in drafting a course and to prepare an examination that would measure the extent to which those particular objectives were achieved in student performance. Third, students taking the new courses were given nationally standardized tests and/or tests taken by matched groups of students enrolled in equivalent standard courses. Analyzed results of the testing became a part of the material made available to teachers who wished to use the new courses and proved to be an important factor in encouraging dissemination.

Schenley High School and more recently Frick Elementary School and the University's School of Liberal Arts and School of General Studies have done more than field test the CCD program's components. They also have served as demonstration sites, accommodating observors not only from other schools in the city but from educational institutions throughout the country and abroad. Because CCD has insisted that its written materials are both always unfinished and only part of what is involved, observation of the program in practice in these pilot units has been especially important. The pilot units have served in this way at substantial expense to themselves and at considerable inconvenience to their faculties and staff, as part of the institutional contribution to the project.

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[5]"The Task of Evaluation in Curriculum Development Projects: A Rationale and Case Study," C. M. Lindvall, paper presented at American Educational Research Association, Chicago, Illinois, February 12, 1965.

CHAPTER V

Dissemination & Elaboration

The specific material output of CCD, as described in the preceding chapter, represents only part of what the project was intended to produce. The greater part, indeed, is the less tangible modification of professional and institutional behavior which CCD has sought to achieve. Three aspects of the latter will be considered in this chapter.

First, of course, the instructional materials and practices field tested and demonstrated at Frick, Schenley and the University were intended to be disseminated to other Pittsburgh schools. The entire Pittsburgh Public School system was the University's partner in the project. Frick and Schenley were simply the particular elementary and secondary units of the system selected to serve as field-testing sites. Therefore, we will look at the manner and the extent to which this large central city school system was influenced by the CCD venture.

Second, the CCD project was undertaken at the instigation of the Regional Commission on Educational Coordination as a pilot project intended to have an impact on schools and colleges throughout the Upper Ohio Valley Region. The Commission sought to improve not only the Pittsburgh Public Schools and the University of Pittsburgh but, through their pilot efforts, to influence all the region's other educational institutions as well. Furthermore, the Fund for the Advancement of Education, in providing supplementary financial support, was interested in the Pittsburgh CCD not simply for the sake of the city and its region but for the project's potential as a pilot venture relevant to the needs of other metropolitan centers and regions across the country. Therefore, we will consider how the CCD has reached beyond the two principal collaborating institutions.

Third, and perhaps most important of all, the CCD was designed as a time-limited, special purpose project which hopefully would so influence professional and institutional attitudes and behavior that a continuous collaboration practice would be established and multi-purpose educational improvement ventures would be generated. Educational improvement projects, like political reform movements, too often have a way of seeming to accomplish something worthwhile, only to lose their steam and let the situation lapse back to the same unsatisfactory state as before. To avoid this fate, a project like CCD should lead to more and larger ventures, building on the personnel experience and the insights into educational needs developed along the way. Therefore, we will look also at the extent to which the CCD has had this effect.

Process of Adoption in the System

The process of adoption of CCD materials in Pittsburgh Public Schools beyond the two designated pilot schools was entirely voluntary. The Board of Education did not, and was not requested to, mandate use of the materials. Neither did the Superintendent of Schools nor the headquarters staff decree its use. Indeed, the Superintendent's Office at various times found it necessary to restrain principals from adopting the materials because of costs involved and throughout the five-year project refrained from actively pushing adoption. On only one occasion, a single two-hour meeting of secondary school principals, was a formal presentation of available CCD materials made to any school administrators.

Dissemination among the city's schools took place instead by informal word-of-mouth channels, principally through the interest and efforts of individuals who had been engaged in CCD task forces. A teacher or teachers from another school would be recruited for a curriculum development task, in performing it would develop an interest in the project as a whole, and would suggest adoption of some or all of the materials in another school. Elementary and secondary supervisors, almost all of whom were engaged in one task force or another, carried the word to the school staffs in their supervisory areas of the city or, at the secondary level, to teachers in their subject areas. In one instance, a CCD associate director became a high school principal and instituted much CCD material in his new school.

In general, then, it must be said that no formal program of dissemination in the city was employed. None really was possible because the city schools at the time were struggling with tight budgets and could not afford any wholesale change of instructional materials. Indeed, the dissemination that did occur was more than enough to tax the city schools' financial resources, so that any more vigorous promoting of adoption would have caused serious embarrassment. Recognizing the situation, the CCD board and staff, therefore, refrained from making an issue of support for dissemination and, as it were, let nature take its course. This alone proved reasonably effective.

An independent survey of CCD materials distribution was conducted by two University sociologists in the Spring of 1965, after all study guides and course syllabi had been drafted, but before CCD as such went out of existence and the identity of its materials was deliberately lost in on-going school programs. Because work began earlier at the secondary level, dissemination at that level had progressed farther than at the elementary level where some material was only then entering field testing. (See Table 1.)

TABLE 1

Distribution of CCD Materials
by Curriculum, by School and Curriculum Area
in Pittsburgh Schools*

April 1961 - November 1965

ELEMENTARY PUBLIC SCHOOLS	Social Studies	Foreign Language	Mathematics	Science	Language Arts	Total
Arlington					1	1
Banksville					1	1
Baxter				1	1	2
Belmar	1		1	1	1	4
Boggs					1	1
Bonair			1			1
Brookline	1	1	1		1	4
Clayton					1	1
Colfax	1		1	1	1	4
Concord					1	1
Crescent					1	1
Davis					1	1
Dilworth		1		1		2
Frick	1	1	1	1	1	5
Friendship					1	1
Fulton			1	1	1	3
Greenfield				1	1	2
Holmes	1	1				2
Larimer	1	1	1	1	1	5
Lemington					1	1
Liberty					1	1
Linden	1	1	1		1	4
McCleary					1	1
Madison				1		1
Mann					1	1
Mifflin					1	1
Miller					1	1
Minadeo					1	1
Morningside	1		1	1	1	4
Morrow			1	1	1	3
Morse					1	1
Overbrook	1		1			2
Park Place		1				1
Rogers	1	1			1	3
Quentin Roosevelt					1	1
Schaeffer				1	1	2
Sterett		1	1		1	3
Sunnyside	1		1			2
Vann	1					1
West Liberty		1			1	2
Westwood					1	1
Wightman		1		1	1	3
Woolslair			1			1
Subtotal (N = 43)	12	11	14	13	34	84

TABLE 1 (Continued)

SECONDARY PUBLIC SCHOOLS	Social Studies	Foreign Language	Mathematics	Science	Language Arts	Total
Allderdice Jr.-Sr.	1	1	1	1	1	5
Allegheny Sr.	1			1		2
Carrick Sr.	1	1	1	1	1	5
Conroy Jr.			1	1		2
Fifth Avenue Jr.-Sr.	1			1		2
Gladstone Jr.-Sr.					1	1
Herron Hill Jr.	1	1			1	3
Knoxville Jr.			1		1	2
Langley Jr.-Sr.	1	1	1		1	4
Latimer Jr.			1		1	2
Mifflin Jr.	1	1	1	1	1	5
Oliver Jr.-Sr.	1				1	2
Peabody Sr.	1		1	1	1	4
Perry Sr.	1	1	1	1	1	5
Prospect Jr.			1		1	2
Schenley Sr.	1	1	1	1	1	5
South Jr.-Sr.	1	1	1	1	1	5
South Hills Sr.	1	1	1	1	1	5
Westinghouse Jr.-Sr.	1	1	1		1	4
Subtotal (N = 19)	14	10	14	11	16	65

*Excludes materials distributed to the Pittsburgh Board of Public Education and the University of Pittsburgh, to which copies of materials in all curriculum areas were distributed

Some CCD materials were in use in 43 elementary schools (52 per cent of the city's total) and in 19 secondary schools (95 per cent). English (or language arts) material had the widest distribution of any single subject area, being used in 34 (72 per cent) of the elementary schools and in 16 (76 per cent) of the secondary schools. Approximately one-fourth of the public elementary schools (between 11 and 14) had received materials in each of the other four curriculum areas. Almost three-fourths of the public secondary schools (14) had CCD materials in social studies-history and in mathematics, and approximately one-half (10 and 11) had materials in French and in science.

Of the elementary schools, one-half (22) had materials in only one curriculum area. Only two elementary schools (Frick being one) had materials in all five areas. On the other hand, more than one-third (6) of the secondary schools had materials in all five areas and only one had materials in but a single area. This, of course, reflects the later development and testing of the elementary material.

Four Catholic parochial schools and the Falk Laboratory School in the city also were making some use of CCD materials.

Diffusion Elsewhere and Otherwise

The same survey gives some indication of CCD materials distribution elsewhere in the region, state and nation, although these figures do not necessarily mean that the materials actually are in use, only that they have been requested and received.

CCD materials were sent to persons in 79 communities in Pennsylvania beyond the City of Pittsburgh (Table 2). Of these communities, 24 (30 per cent) were located in Allegheny County and 13 (16 per cent) were located in the other three countries that make up the Pittsburgh Standard Metropolitan Statistical Area. More than one-half of these communities (44) were located in Southwestern Pennsylvania. Of the remainder, 8 (10 per cent) were in the northwestern part, 12 (15 per cent) in the central part, and 15 (19 per cent) in the eastern part.

There were 179 requests for CCD materials from institutions and individuals living in Pennsylvania outside the City of Pittsburgh. These requests came from 110 institutions and individuals. Forty-two (38 per cent) of the requests came from persons connected with schools, 7 (6 per cent) from persons in colleges or universities, 14 (13 per cent) from boards of education, and 47 (42 per cent) from persons who would not be identified with a particular institution.

TABLE 2

Distribution of CCD Materials in Pennsylvania Outside the City of Pittsburgh, by Type of Recipient

April 1961-November 1965

Type of Recipient

City, Township or Borough	County	School	College or University	Board of Education	Individual	Total
Allentown	Lehigh	1			1	2
Alliquippa	Beaver				1	1
Allison Park	Fayette				1	1
Ammville	Lebanon	1				1
Ashley	Luzerne				1	1
Baldwin-Whitehall	Allegheny	3			1	4
Beaver	Beaver			1	1	2
Bethel Park	Allegheny	1				1
Bradford	McKean	1				1
Brentwood	Allegheny	1				1
Butler	Butler				2	2
Carnegie	Allegheny				1	1
Chambersburg	Franklin				1	1
Clairton	Allegheny	1			1	2
Clearfield	Clearfield				1	1
Coraopolis	Allegheny	1				1
Crafton	Allegheny	1		1		2
Dallas	Luzerne			1		1
Dallastown	York	1				1
Derry	Westmoreland	1		1		2
Duquesne	Allegheny				1	1
Easton	Northampton				1	1
Ebensburg	Cambria	1				1
Edgewood	Allegheny				1	1
Elizabethtown	Lancaster	1				1
Emmaus	Lehigh				1	1
Erie	Erie		3	1		4
Farrell	Mercer				1	1
Fox Chapel	Allegheny	1				1
Glassport	Allegheny	1			2	3
Glenshaw	Allegheny	1				1
Greensburg	Westmoreland	1				1
Greenville	Mercer	1				1
Gwynedd Valley	Montgomery	1				1
Homestead	Allegheny	1				1
Hummelstown	Dauphin				1	1
Huntingdon	Huntingdon	1		1		2
Imperial	Allegheny	1				1
Irwin	Westmoreland	1				1
Jersey Shore	Lycoming			1		1

TABLE 2 (Continued)

City, Township or Borough	County	School	College or University	Board of Education	Individual	Total
Johnstown	Cambria		1		3	4
Koppel	Beaver	1				1
Latrobe	Westmoreland				1	1
Lewisburg	Union				1	1
Lockhaven	Clinton	1				1
McConnollstown	Huntingdon				1	1
McKeesport	Allegheny	1		1	1	3
McKees Rocks	Allegheny				2	2
Malvern	Chester				1	1
Meadville	Crawford			1	1	2
Meyersdale	Somerset	1				1
Monongahela	Washington				1	1
Monessen	Westmoreland				1	1
Mt. Lebanon	Allegheny	1			1	2
Murrysville	Westmoreland	1				1
Nazareth	Northampton				1	1
North Charleroi	Washington				2	2
Orefield	Lehigh	1				1
Penn Hills	Allegheny			1		1
Peters	Washington			1		1
Philadelphia	Philadelphia		2		2	4
Plains	Luzerne	1				1
Pleasant Hills	Allegheny	1				1
Plymouth Meeting	Montgomery			1		1
Reynoldsville	Jefferson				1	1
Scranton	Lackawanna	1				1
Sewickley	Allegheny				1	1
Sharon	Mercer	1				1
Shoemakersville	Berks				1	1
Slippery Rock	Butler		1			1
Sunbury	Northumberland				1	1
Swissvale	Allegheny	1				1
Troy	Bradford	1				1
Upper St. Clair	Allegheny	2				2
Verona	Allegheny			1		1
Waynesburg	Greene	1				1
West Alexander	Washington				2	2
Wilkinsburg	Allegheny			1	1	2
Wyomissing	Berk	1			1	2
Total (N = 79)		42	7	14	47	110

The curriculum materials most widely distributed in Pennsylvania outside Pittsburgh were in French and in English (or language arts). There were 50 requests filled in each of these areas (28 per cent each). Thirty-five of the requests (20 per cent) were in social studies, 31 (17 per cent) in mathematics and the remaining 13 (7 per cent) in science.

Outside Pennsylvania (see Table 3) CCD materials were distributed in 31 states from Massachusetts to Hawaii and from Florida to North Dakota, and in two foreign countries (Canada and South Africa). The largest number of requests came from institutions and individuals in New York State (20), followed by Ohio (12) and New Jersey (10).

One-third (46) of the institutions or individuals requesting CCD material from out-of-state were identified with schools and 18 per cent (26) were with local boards of education. Requests came from 15 colleges and universities (11 per cent) and from 4 state boards of education (3 per cent). Eight requests (6 per cent) came from other organizations, including foundations and book publishers. The remaining 42 requests (30 per cent) came from individuals who could not be identified with a particular organization.

Of the materials sent out of state, those in social studies-history and English (or language arts) accounted for more than one-half (language arts 27 per cent, social studies 26 per cent). Foreign language and mathematics accounted for more than one-third (18 per cent each) and science the remainder (11 per cent). (See Table 4)

The figures above,[6] while failing to count the distribution made at professional conferences and association meetings attended by CCD staff, fairly represent the degree of interest evidenced by written requests for material. They are not, of course, a measure of impact because they do not indicate what use actually was made of them and we have no such measure. However, it seems safe to say, even on this evidence, the CCD materials have had some influence beyond the city.

More influential than the materials themselves, perhaps, has been the CCD staff's activity in propagating the practice of school-and-university collaboration to achieve curriculum continuity and modernization, using the CCD materials production as an example. More than 70 presentations were made at state and local school board meetings, at state college or other curriculum conferences, at professional education conventions and association meetings. Articles by staff members have appeared in six professional journals and annual progress reports have provided the material for numerous other articles, all stressing the practice of school-and-college collaboration. Prentice-Hall is publishing an account in its School Management Series.

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[6] Compiled by Herbert Aurbach and Delila Amir.

TABLE 3

Distribution of CCD Materials Outside the State of Pennsylvania by Type of Recipient

April 1961-November 1965

State or Country	School	College or University	Local Board of Education	State Board of Education	Other Organizations*	Individuals	Total
UNITED STATES							
Alabama		1				1	2
Arizona	1						1
California	2	2	1	1		1	7
Colorado	1	1	2				4
Connecticut	2		2			3	7
Florida	2	1	1			2	6
Georgia			1			1	2
Hawaii				1			1
Illinois	3		1			1	5
Indiana	1		3			1	5
Kansas	1	1					2
Kentucky	2	2					4
Maryland	1		1			3	5
Massachusetts	3		3			3	9
Michigan	1		1			1	3
Minnesota	1		1				2
Missouri			1		1		2
Nebraska						1	1
New Jersey	6	1	1		1	1	10
New York	6	1		1	5	7	20
North Carolina	2					3	5
North Dakota						1	1
Ohio	4	2	2			4	12
Oregon		1	1			2	4
Tennessee			1		1		2
Texas	1		3				4
Utah	2						2
Virginia						1	1
Washington	1			1		1	3
West Virginia	1	1					2
Wisconsin	2	1				2	5
FOREIGN							
Canada						1	1
South Africa						1	1
Total	46	15	26	4	8	42	141

N = 31 states and 2 foreign countries

*Includes foundations and publishers

TABLE 4

Distribution of CCD Materials Outside the
City of Pittsburgh, by Curriculum Area

April 1961-November 1965

OUTSIDE DISTRIBUTION	Social Studies	Foreign Language	Mathematics	Science	Language Arts	Total
Pennsylvania	35	50	31	13	50	179
Other U.S.	87	62	60	38	90	337
Foreign	1				2	3
TOTAL	123	112	91	51	142	519

Most important, however, at least from the staff's point of view, is the continuing demonstration in Pittsburgh of the efficiency of school-and-university collaboration. The CCD as such ceased to exist on July July 1, 1965, but its materials and practices are continued in the regular on-going programs of the city schools and the University. The city's new Scholars Program, for instance, has made extensive use of CCD materials, and a Coordinated Language Experience Program in 21 schools is using the CCD's material. The School Board-sponsored summer curriculum workshops also employ it extensively in mathematics and foreign language, in social studies and English. Only in the Frick-Schenley combination is the full CCD program still distinguishable but elsewhere it has found its place without the name.

Expanding the Collaboration Concept

One reason that CCD as such has been phased out as a distinguishable project and absorbed into on-going programs is that both the City School System and the University felt the time had come to redeploy their respective resources for experimentation and innovation along other lines suggested by the experience with CCD.

The Pittsburgh Schools, for instance, have launched a Scholars Program designed to cultivate fully the learning capabilities of the ablest students by permitting them to pursue especially challenging programs in designated schools. Many of the former CCD task force participants now are engaged in this project. In another direction, the City Schools are embarked upon a massive, multi-faceted compensatory education program in which the collaborative practices tested in CCD are being widely employed.

The University of Pittsburgh, elaborating on the CCD experience, has established the Learning Research and Development Center which almost at once was selected for large-scale, long-range funding by the U.S. Office of Education as the first unit of what since has become a national network of educational R and D centers.

As explained in Chapter II, the planners of CCD had had to bypass the fundamental problem of developing more reliable knowledge about the learning process and the intrinsic requirement of subject-matter ordering or sequencing for optimal learning, and had decided to proceed on the basis of the best knowledge then available, in order to get at the more superficial but pressing problems of curriculum continuity and modernization. Five years later, however, with the CCD being absorbed into regular operations of the schools and the University, the time seemed appropriate to go back to those fundamental problems, to capitalize on the increased insight gained from CCD experience, and to mobilize still greater personnel talents and financial resources for the basic investigations and experiments necessary to undergrid the next major advance in educational effectiveness.

The Learning Research and Development Center (LRDC), founded for this purpose, now has a staff of more than twenty experimental psychologists, sociologists, scientists, technologists and education specialists, many of them with national prominence (Robert Glaser, Omar Khayyam Moore, James Holland, C. M. Lindvall, Paul Kjeldergaard). It has one of the country's most elaborate computer-controlled learning laboratories and a half-dozen major field studies under way on individually prescribed and subculturally differentiated instruction, on the requirements of optimal subject-matter sequencing and the potentialities of technologically advanced instructional media. At this writing, its contract with the U.S. Office of Education provides $800,000 a year and other government and foundation support puts its annual operating budget well over the million dollar mark.

Associated with the University's LRDC, are several state and private colleges, a state education department, private corporations and numerous school systems. These and still others now are laying the groundwork for a massive regional educational laboratory to add educational services and specialized training to the research and development functions.

Thus, far from being a terminal report or post-mortem, this account of the origin of CCD in the Regional Commission on Educational Coordination and its operation as an example of school-and-university collaboration points toward still more elaborate and ambitious endeavors at improving the quality of education. The five-year CCD is itself but a chapter in a continuing story. However, because it had its own organizational beginning and end, the CCD lends itself to a case-study examination.

We turn now to an appraisal of that case study.

CHAPTER VI

An Appraisal

How successful was the Pittsburgh Curriculum Continuity Demonstration?

The easy answer, of course, is that it was eminently successful because it opened the way to bigger and better things. There can be little doubt that during its five years of operation, it prepared many university professors and school teachers to be effective collaborators in educational experimentation and innovation. It helped substantially to establish the practice of school-and-university collaboration, to focus interdisciplinary attention on educational problems and to bridge over the chasm that separated scholars and scientists from education specialists. The character, quality and magnitude of the new Learning Research and Development Center alone are ample evidence of that.

It probably can be declared successful from two other points of view as well, from that of the direct participants in the various task forces who have testified almost unanimously to the professional stimulation and advancement accruing from the experience, and from that of the particular schools which were enabled to improve their offerings for academically talented young people. All these, however, are gross appraisals and, since CCD is not held up as a model to be emulated but as an experience to be shared, they contribute little that is useful.

Let us instead look at some of the things the CCD staff would do differently if they were to try again with the experience they now have.

First, there is great difficulty in establishing a truly equal partnership between a university and a city school system, and we did not achieve it despite the elaborate balancing of participation in governing board, staff and task forces. The CCD was not integrated into the overall program of the Pittsburgh Schools nor into the thinking of the Board and its central staff in the manner characteristic of projects for which the grant funds are channeled through their books. CCD grants were made to the University and school persons were employed and compensated personally rather than through the school system's payroll. In retrospect, this appears to have been a mistake for this particular kind of joint venture.

A distinction, perhaps, should be drawn between ventures which emphasize practical application and almost immediate dissemination to large numbers of regularly operating schools and, on the other hand,

ventures in which schools are used for investigative or experimental purposes where findings are to be the principal outcome. The former will be more successful if those who have administrative and fiscal responsibility for the schools also have the principal responsibility for the grant-supported project or program. The latter will flourish best, or one almost might say only, if the university's investigators have the principal responsibility and control. The CCD was a little of both kinds of venture but more the former than the latter, yet its fiscal control and to an extent, therefore, its administrative control rested more with the university than with the schools.

The result was by no means fatal. The CCD project was carried out pretty much as jointly planned and intended. However, the irritations and frustrations probably were more numerous than necessary and almost certainly the dissemination would have proceeded far faster had the Public School System had a greater share of control and, therefore, had accepted CCD more fully as its own. While the job got done, perhaps it could have been done more easily with another arrangement.

Second, the school teachers and university professors who participate in a long-range project such as CCD probably ought to do so on a released-time rather than a personal-overtime basis. The method employed in CCD seemed advisable at the time for two reasons. The teacher shortage was such that to have pulled participants out of classrooms would have threatened to weaken on-going programs which CCD was intended to strengthen, simply because competent substitute teachers were not available. And to have assigned teachers and professors to participate, in order to use released time instead of personal overtime, would have made the whole project something imposed from without rather than something the teachers accepted as their own to be implemented. How it could have been handled otherwise we cannot say, but we have to concede that experience indicates that late afternoons and Saturdays, after hard weekday work, are not the best times to elicit creative and imaginative efforts. The summer periods were most productive but, unless participants are on year-around employment schedules, it is difficult to keep teams together over vacation periods.

Third, building principals are key people in deciding the fate of proposed innovations, at least in systems organized like Pittsburgh's, and they ought to be engaged personally and deeply in any venture which later will require their support. We did not do this at all consistently and eventually we paid the price. The project director has to confess having miscalculated the relative influence of supervisors and building principals and consequently relying too much on the former and not enough on the latter. The situation may well be different in other school systems, but in Pittsburgh's during this period at least the central office staff of the school system though knowledgeable were not powerful on curriculum matters.

Fourth, when either a school or a university participant in a task force or steering committee shows signs of being unable to cooperate, he ought to be replaced quickly and not carried along on the rationalization that he will be educated by the experience. Non-cooperators of several sorts appeared in CCD. Some simply would not accept as equal partners persons from another institutional level. Actually, we had at least as much difficulty between persons from elementary and secondary levels as between persons from the schools and the University. Others were unable to lay aside their robes of office from their regular positions and work with subordinates on task forces or on committees in a special project such as CCD. Still others, and these were mostly University professors, expected to be compensated as participants but to serve as consultants only. Most of these we dropped sooner or later, but still sooner would have been better.

On the other hand, experience with CCD confirmed several decisions that were made with some doubt and trepidation. One of the most enlightening results has been to learn that many of the apparent difficulties and hazards that might discourage attempts at school improvement or school-and-university collaboration are not real at all. When CCD began, we could think of twice as many reasons why it would not work as why it would, but more than half the former were fantasies.

First, the place to attack a tough educational problem is where it is, not where you wish it were. The decision to carry out the CCD field testing at Frick and Schenley rather than at more favored schools in the city seems in retrospect to have been a good one. The preceding decision to try CCD in the city rather than in a select suburb also looks good in retrospect. While it may be more difficult to get on top of the problem, demonstrating and disseminating the solution thereafter is all downhill, compared with the task from a favored-school base.

Second, equal status collaboration by school teachers and University professors is quite feasible and much better than trying to compensate or team differentially. That is to say, task forces can be made to consist of persons whose ordinary salaries and community or professional status are quite different and all can be compensated the same and induced to work together as equals. We decided to do it this way despite serious doubts. A few individuals had to be substituted for, but in general this worked quite well and seems in retrospect the equitable way to man task forces that are set up for special projects not a part of regular institutional operations.

Third, a small continuing nucleus staff, most of whom are assigned only part time, can keep a complex project involving several hundred participants on the track and moving toward the end intended. The CCD, as the previous chapters should have made apparent, was a considerably complex enterprise and yet for only one staff person was it even the principal occupation. For a few others it was a one-quarter to one-half time concern and for the great bulk of participants it was a spare time venture. The temptation was present from the beginning to build up a sizeable full-time staff and have it do the work neatly and expeditiously, although at the sacrifice of modifying attitudes and behaviors of greater numbers of persons. We decided to involve large numbers part-time and the result has been gratifying. The specific material output was produced almost on schedule and the great by-product of widespread new attitudes and professional behavior patterns was achieved.

Fourth and finally, it is not necessary to have all of the expert talents lined up and all of the financial resources in hand before undertaking a long-range, far-reaching endeavor in educational improvement, because a little momentum can be used to generate more momentum. Certainly those who initiated CCD could not at that time have mustered all the professional talents and financial resources that eventually were mobilized in CCD. Had they waited until they could, they probably would be waiting still. What was done was to mount the best effort possible at the moment, to keep the distant goal clearly in mind and before the eyes of potential supporters, and to count on one step leading to another. Nothing appeals more to potential backers than a well-aimed endeavor by dedicated participants who cannot wait to get started.

In summary, then, if we had it to do over again, we probably would -- with modifications. If others can find in this report anything to help them do better than they otherwise would or than we did, so much the better for our educational enterprise.

APPENDICES

APPENDIX A

SYMPOSIUM PARTICIPANTS
For Regional Commission on Educational Coordination

Social Relations

C. Stanton Belfour, Director and Secretary, The Pittsburgh Foundation

Hugh C. Boyle, President Judge of Orphans Court, Allegheny County

Thomas Cooley, Dean of the School of Law, University of Pittsburgh

Earl Dimmick, former Superintendent of Schools, Pittsburgh

E. K. Eberhart, Professor of Economics, College of Wooster

Mrs. Leon Falk, Jr., Vice President, United Vocational and Employment Service

Elmer D. Graper, Chairman, Pennsylvania Civil Service Commission

Roy Heath, Director of the Counseling Center, University of Pittsburgh

J. Garfield Houston, Esquire (Blaxter, O'Neil and Houston)

Robert Kirkpatrick, Esquire (Kirkpatrick, Pomeroy, Lockhart and Johnson)

James W. Knox, Controller of Allegheny County

John A. Mayer, Vice President, Mellon National Bank and Trust Company

George P. Mills, Director, Allegheny County Board of Assistance

Edward Smuts, President, Regional Industrial Development Corporation

Howard Stewart, member of the Board of County Commissioners, Allegheny County

Donald C. Stone, Dean of the Graduate School of Public and International Affairs, University of Pittsburgh

Economic Affairs

Frank E. Agnew, President, Peoples First National Bank

Leland Bach, Dean of the Graduate School of Industrial Administration, Carnegie Institute of Technology

Clifton Caldwell, International Vice President, Amalgamated Food Workers

Fred C. Foy, President, Koppers Company

Bela Gold, Professor of Industry and of Economic Research, University of Pittsburgh

Harry B. Higgins, former President, Pittsburgh Plate Glass Company

Henry Hillman, President, Pittsburgh Coke and Chemical Company

Ralph D. Horsman, Superintendent of Schools, Mt. Lebanon, Pennsylvania

John Wesley May, Professor of Economics, Washington and Jefferson College

David J. McDonald, President, United Steelworkers of America

Steven L. Osterweis, Executive Director, Gimbel Brothers, Pittsburgh

D. B. Perrin, Manager, Personnel Relations, Duquesne Light Company

E. Grosvenor Plowman, Vice President, United States Steel Corporation

John T. Ryan, President, Mine Safety Appliance Company

Oscar Schwarm, Director of Guidance Services, Pittsburgh Board of Education

G. L. Scott, Coordinator, Organization Planning Department, Gulf Oil Company

J. Paul Scurlock, District Manager, Bell Telephone Company

A. B. Wright, Dean Emeritus, School of Business Administration, Duquesne University

Science and Technology

Paul Bachman, Vice President, Koppers Company

A. W. Beattie, Superintendent of Schools, Allegheny County

R. L. Brown, Professor of Physics, Allegheny College

Ralph Ely, Vice President, Nuclear Science and Engineering Company

Aiken W. Fisher, President, Fisher Scientific Company

G. Raymond Fitterer, Dean, Schools of Engineering and Mines, University of Pittsburgh

Henry S. Frank, Chairman of the Department of Chemistry, University of Pittsburgh

J. A. Hutcheson, Vice President, Westinghouse Electric Corporation

M. W. Lightner, Vice President, United States Steel Corporation

Robert M. Morgan, Head of Bureau of Measurement and Guidance, Carnegie Institute of Technology

R. J. S. Pigott, former Chief of Engineering, Gulf Oil Company

C. L. Rumberger, Vice President, H. J. Heinz Company

Earle P. Shoub, Regional Director, U.S. Bureau of Mines

C. V. Starrett, Associate Director, Buhl Foundation

E. K. Wallace, Professor of Chemistry, Chatham College

J. C. Warner, President, Carnegie Institute of Technology

Blaine B. Westcott, Vice President, Gulf Research and Development Company

Health

Philip Broughton, Secretary, A. W. Mellon Charitable and Educational Trust

Dr. John T. Cowles, Professor of Psychology, School of Medicine, University of Pittsburgh

Dr. T. S. Danowski, Renziehausen Professor of Research, School of Medicine, University of Pittsburgh

Mrs. Alice K. deBenneville, Executive Director, Visiting Nurse Association of Allegheny County

Dr. Murray Ferderber, Head of Department of Physical Medicine, Presbyterian Hospital

Dr. William F. Finzer, Director, Child Guidance Center

George L. Follansbee, President, Shady Side Academy

Dr. Victor J. Freeman, Associate Professor of Public Health, University of Pittsburgh

Alvin R. Guyler, Regional Manager, U.S. Veterans Administration

Dr. Edmund McCluskey, Vice Chancellor - Health Professions, University of Pittsburgh

Dr. Campbell Moses, Jr., Director, Addison H. Gibson Laboratory

Dr. Robert O'Connor, Medical Director, United States Steel Corporation

Carl Olson, Head of Department of Physical Education, Men's Division, University of Pittsburgh

Walter Rome, Executive Director, Children's Hospital

Dr. Leo P. Sheedy, past President, Allegheny County Medical Society

Dr. Isaac Sissman, immediate past President, Pennsylvania Dental Association

Culture and Values

Dr. Henry W. Brosin, Director, Western Psychiatric Institute and Clinic

John G. Buchanan, Sr., (Buchanan, Ingersoll, Rodewald, Kyle and Buerger)

W. George Crouch, Chairman, Department of English, University of Pittsburgh

Solomon B. Freehof, Rabbi, Rodef Shalom Temple

Carl E. Glock, Sr., Esquire (Reed, Smith, Shaw and McClay)

Leland Hazard, Vice President, Pittsburgh Plate Glass Company

Mrs. Ferne Horne, Director of Guidance, Mt. Lebanon High School

Putnam F. Jones, Dean of the Graduate Faculty, University of Pittsburgh

Charles LeClair, Professor of Art, Chatham College

Ralph Munn, Director, Carnegie Library of Pittsburgh

Charles H. Peake, Vice Chancellor - the Academic Disciplines, University of Pittsburgh

Dr. Jonas E. Salk, Director, Virus Research Laboratory

A. W. Schmidt, President, A. W. Mellon Educational and Charitable Trust

Gladys Schmitt, Author and Professor of English, Carnegie Institute of Technology

Donald Steinfirst, Music Critic and President of Lastik Products, Inc.

Gordon Washburn, Director of Fine Arts, Carnegie Institute of Technology

APPENDIX B

STUDY GROUP PARTICIPANTS
For Regional Commission on Educational Coordination

Reading and Literature Study Group

Dr. Donald L. Cleland, University of Pittsburgh, Pennsylvania

Miss Concetta Collura, Duquesne University, Pittsburgh, Pennsylvania

Miss Ida Collura, Duquesne University, Pittsburgh, Pennsylvania

Mrs. Marion E. Corbett, Baldwin-Whitehall Schools, Pittsburgh, Pennsylvania

Dr. Beckman W. Cottrell, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Dr. John W. Cummins, Chatham College, Pittsburgh, Pennsylvania

Miss Marilyn Denton, Winchester-Thurston School, Pittsburgh, Pennsylvania

Miss Lois Grose, Pittsburgh Board of Education, Pennsylvania

Miss Leotta Hawthorne, Geneva College, Beaver Falls, Pennsylvania

Mr. I. F. Hoerger, Perry High School, Pittsburgh, Pennsylvania

Dr. Eddie Kennedy, West Virginia University, Morgantown, West Virginia

Dr. Helen B. Knipp, Baldwin-Whitehall Schools, Pittsburgh, Pennsylvania

Miss Agnes Krarup, Pittsburgh Board of Education, Pennsylvania

Dr. Calvin Lane, Chatham College, Pittsburgh, Pennsylvania

Miss Mary Lytle, Winchester-Thurston School, Pittsburgh, Pennsylvania

Mr. Frederick P. Mayer, University of Pittsburgh, Pennsylvania

Mrs. Verda Moran, North Hills High School, Pittsburgh, Pennsylvania

Mr. Victor E. Morrone, West Virginia University, Morgantown, West Virginia

Mr. Gerald Newton, Beaver County Schools, Pennsylvania

Dr. Floy Penn, Mt. Lebanon Schools, Pittsburgh, Pennsylvania

Dr. Ralph Scott, Pittsburgh Board of Education, Pennsylvania

Dr. Erwin R. Steinberg, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Mrs. Mary Swarts, North Allegheny Joint Schools, Pittsburgh, Pennsylvania

Miss Nora Willetts, Pittsburgh Board of Education, Pennsylvania

Mrs. Ivy Willis, North Hills Joint Schools, Pittsburgh, Pennsylvania

Writing Study Group

Dr. George Bleasly, Westminster College, New Wilmington, Pennsylvania

Miss Ellen Booth, Langley High School, Pittsburgh, Pennsylvania

Dr. Edward Carr, Indiana State College, Pennsylvania

Miss Miriam Crouse, South Hills High School, Pittsburgh, Pennsylvania

Mr. Montgomery M. Culver, University of Pittsburgh, Pennsylvania

Miss Helen I. DeFrance, Peabody High School, Pittsburgh, Pennsylvania

Miss Virginia Elliott, Mt. Lebanon High School, Pittsburgh, Pennsylvania

Dr. William Grayburn, Penn State University, University Park, Pennsylvania

Dr. Brice Harris, Penn State University, University Park, Pennsylvania

Dr. Samuel Hazo, Duquesne University, Pittsburgh, Pennsylvania

Mr. Charles Hettinger, Pittsburgh Board of Education, Pennsylvania

Miss May Ireland, Edgewood High School, Pittsburgh, Pennsylvania

Dr. Calvin Lane, Chatham College, Pittsburgh, Pennsylvania

Mr. Arthur H. Mann, Shady Side Academy, Pittsburgh, Pennsylvania

Dr. Alan Markman, University of Pittsburgh, Pennsylvania

Miss Elaine Pelaez, Taylor Allderdice High School, Pittsburgh, Pennsylvania

Mr. Edwin L. Peterson, University of Pittsburgh, Pennsylvania

Miss Diantha Riddle, Taylor Allderdice High School, Pittsburgh, Pennsylvania

Miss Gladys Schmitt, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Miss Elizabeth Stormfels, Perry High School, Pittsburgh, Pennsylvania

Languages Study Group

Miss Evelyn Baxter, Baldwin-Whitehall Schools, Pittsburgh, Pennsylvania

Mrs. Virginia Berardino, Schenley High School, Pittsburgh, Pennsylvania

Mrs. Hilda Byerly, Woodside School, Pittsburgh, Pennsylvania

Mrs. Esther Carlin, South Hills High School, Pittsburgh, Pennsylvania

Mrs. Mabert King Edwards, Edgewood High School, Pittsburgh, Pennsylvania

Mrs. Edith Farrell, Wilkinsburg Public Schools, Pittsburgh, Pennsylvania

Mrs. Helen Garrity, Woodside School, Pittsburgh, Pennsylvania

Miss Lillian Goldstein, Taylor Allderdice High School, Pittsburgh, Pennsylvania

Miss Marjorie Hawkins, Evergreen School, Monroeville, Pennsylvania

Mrs. Ilsedore Jonas, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Mr. Hayward Keniston, University of Pittsburgh, Pennsylvania

Dr. J. Kolbert, University of Pittsburgh, Pennsylvania

Mr. Victor J. Lemke, West Virginia University, Morgantown, West Virginia

Dr. Joseph Mastronie, University of Pittsburgh, Pennsylvania

Miss Elizabeth B. Maxwell, Edgewood Public Schools, Pittsburgh, Pennsylvania

Miss Mathilda Meyer, South Hills High School, Pittsburgh, Pennsylvania

Mrs. Olga Russell, Chatham College, Pittsburgh, Pennsylvania

Dr. Emmanuel Salgaller, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Mrs. Olive Sedinger, Woodside School, Pittsburgh, Pennsylvania

Dr. Armand E. Singer, West Virginia University, Morgantown, West Virginia

Mathematics Study Group

Dr. Wray Grayson Brady, Washington and Jefferson College, Washington, Pennsylvania

Dr. William A. Beck, Chatham College, Pittsburgh, Pennsylvania

Dr. Richard D. Edwards, Union National Bank, Pittsburgh, Pennsylvania

Mrs. Mahala Elkin, Baldwin High School, Pittsburgh, Pennsylvania

Miss Catherine R. Folger, Taylor Allderdice High School, Pittsburgh, Pennsylvania

The Reverend Clement Heid, St. Vincent College, Latrobe, Pennsylvania

Mrs. Mary L. Ingraham, Norwin Joint High School, Irwin, Pennsylvania

Dr. John C. Knipp, University of Pittsburgh, Pennsylvania

Mr. Theodore R. Leaman, Shady Side Academy, Pittsburgh, Pennsylvania

Miss Edna Mae Love, Derry Township High School, Derry, Pennsylvania

Dr. Catherine A. V. Lyons, University School, Pittsburgh, Pennsylvania

Dr. Joy Mahachek, Indiana State College, Pennsylvania

Miss Helen B. Malter, Coraopolis High School, Coraopolis, Pennsylvania

Dr. Maynard J. Mansfield, Washington and Jefferson College, Washington, Pennsylvania

Sister Mary of the Angels, St. Rosalia High School, Pittsburgh, Pennsylvania

Mr. James E. McKinley, Keith School, Indiana, Pennsylvania

Dr. L. T. Moston, Waynesburg College, Pennsylvania

Dr. B. H. Mount, Westinghouse Electric Corporation, Pittsburgh, Pennsylvania

Mr. Earle F. Myers, University of Pittsburgh, Pennsylvania

Mr. George D. Novak, Bethlehem Junior High School, West Brownsville, Pennsylvania

Sister Mary Peter, Sacred Heart High School, Pittsburgh, Pennsylvania

Dr. Margaret V. Rhoads, Slippery Rock State College, Pennsylvania

Dr. James S. Taylor, University of Pittsburgh, Pennsylvania

Mr. John R. Wagner, Baldwin High School, Pittsburgh, Pennsylvania

Social Sciences Study Group

Mr. Robert D. Abercrombie, Shady Side Academy, Pittsburgh, Pennsylvania

Mrs. Doris C. Campbell, Wilkinsburg High School, Pittsburgh, Pennsylvania

Dr. Edwin Fenton, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Dr. Louis W. H. Johnston, University of Pittsburgh, Pennsylvania

Mr. Alton D. Kidd, Allegheny College, Meadville, Pennsylvania

Brother F. Lewis, Central Catholic High School, Pittsburgh, Pennsylvania

Mr. Bernard S. Logan, University of Pittsburgh, Pennsylvania

Miss Margaret Puff, Butler Area High School, Pennsylvania

Dr. David B. Rogers, University of Pittsburgh, Pennsylvania

Mr. Louis Rossi, Penn Hills High School, Pittsburgh, Pennsylvania

Father Austin Staley, St. Vincent College, Latrobe, Pennsylvania

Mr. Robert Watford, North Allegheny High School, Pittsburgh, Pennsylvania

Dr. Richard J. Winters, Seton Hill College, Greensburg, Pennsylvania

Natural Sciences Study Group

Dr. Roy M. Adams, Geneva College, Beaver Falls, Pennsylvania

Sister Alexine, Sacred Heart High School, Pittsburgh, Pennsylvania

Mr. Anthony J. Botti, Shady Side Academy, Pittsburgh, Pennsylvania

Dr. T. E. Cartwright, University of Pittsburgh, Pennsylvania

Dr. Earl L. Core, West Virginia University, Morgantown, West Virginia

Dr. Bruce H. Dinsmore, Clarion State College, Pennsylvania

Dr. John D. Draper, Bethany College, West Virginia

Father Joseph A. Duke, Wheeling College, West Virginia

Dr. Leslie D. Fallon, Geneva College, Beaver Falls, Pennsylvania

Mrs. Joy S. Lindbeck, Oakmont High School, Pittsburgh, Pennsylvania

Mr. Lawrence Norris, Taylor Allderdice High School, Pittsburgh, Pennsylvania

Dr. Louis Pierro, Wheeling College, West Virginia

Dr. Jerome L. Rosenberg, University of Pittsburgh, Pennsylvania

Dr. Charles J. Shontz, Clarion State College, Pennsylvania

Miss E. Helen Sponcler, Beaver Area High School, Pennsylvania

Mr. P. A. Zitelli, Wilmerding High School, Pittsburgh, Pennsylvania

Ways and Means Study Group

Mr. Bernard S. Adams, University of Pittsburgh, Pennsylvania

Mr. Ernest J. Bishop, Wilkinsburg High School, Pittsburgh, Pennsylvania

Dr. Harold Bruce, Geneva College, Beaver Falls, Pennsylvania

Miss Margaret Claypool, Ford City High School, Pennsylvania

Mrs. Beulah Cook, Beaver Area Schools, Pennsylvania

Miss Vivian Cox, Avonworth High School, Pennsylvania

Miss LaRue Craig, Ellwood City High School, Pennsylvania

Dr. John Daniels, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Mr. James E. Davis, Ford City Schools, Pennsylvania

Dr. Richard W. DeRemer, University of Pittsburgh, Pennsylvania

Mr. Burt Dunmire, Kittanning Area Schools, Pennsylvania

Dr. John R. Edwards, Westminister College, New Wilmington, Pennsylvania

Mr. Fenton Farley, Rochester High School, Pennsylvania

Mr. Frederick J. Frank, Washington and Jefferson College, Washington, Pennsylvania

Miss Elizabeth Fullerton, Beaver Falls High School, Pennsylvania

Miss Mary H. George, Burgettstown High School, Pennsylvania

Miss Avanelle Grafton, Kittanning High School, Pennsylvania

Dr. Charles Groff, Highland Suburban School, Beaver Falls, Pennsylvania

Mr. Guy N. Harriger, Butler Area Schools, Pennsylvania

Mr. W. W. Hartman, Connellsville High School, Pennsylvania

Mr. Frank Heil, Chartiers-Houston High School, Houston, Pennsylvania

Mr. James Jamison, Connoquenessing High School, Pennsylvania

Brother Frederick John, Central Catholic High School, Pittsburgh, Pennsylvania

Miss Esther Johnson, Butler High School, Pennsylvania

Mr. Walter Kearney, New Castle Area Schools, Pennsylvania

Miss Ethel M. Kelly, New Castle High School, Pennsylvania

Mr. William Lauda, Peters Township High School, Canonsburg, Pennsylvania

Mr. William Lee, Moon High School, Coraopolis, Pennsylvania

Mr. Robert A. Lowry, Slippery Rock State College, Pennsylvania

Mr. Marsden McBride, Hickory High School, Sharon, Pennsylvania

Dr. John McIsaacs, Geneva College, Beaver Falls, Pennsylvania

Dr. Lorenzo Mendicino, Charleroi High School, Pennsylvania

Mr. Earl Mezoff, Thiel College, Greenville, Pennsylvania

Mr. Richard E. Moffitt, Armstrong County Schools, Kittanning, Pennsylvania

Mrs. Inez M. Patrick, Brentwood High School, Pittsburgh, Pennsylvania

Mr. George F. Phillips, North Union High School, Uniontown, Pennsylvania

Dr. William M. Potter, Wilkinsburg Public Schools, Pittsburgh, Pennsylvania

Mr. Ross Resciniti, Trinity High School, Washington, Pennsylvania

Mr. W. Reynolds, Jefferson-Morgan High School, Jefferson, Pennsylvania

Mr. K. W. Richards, Uniontown High School, Pennsylvania

Mr. Curtis L. Rohm, Elderton High School, Pennsylvania

Dr. Ralph Scott, Pittsburgh Public Schools, Pennsylvania

Mr. Donald E. Shamble, Waynesburg College, Pennsylvania

Dr. L. D. Smith, Beaver Falls Area Schools, Pennsylvania

Mr. William Smodic, Bethlehem-Center High School, Fredericktown, Pennsylvania

Miss Marion H. West, Moniteau High School, West Sunbury, Pennsylvania

Mr. Neal R. Williams, Slippery Rock High School, Pennsylvania

Miss B. Idell Wilson, Taylor Allderdice High School, Pittsburgh, Pennsylvania

Mr. Michael A. Wolak, Oliver High School, Pittsburgh, Pennsylvania

Law Study Group

Miss E. Brenetta Andrews, Schenley High School, Pittsburgh, Pennsylvania

Mr. Frederick W. Arnold, Schenley High School, Pittsburgh, Pennsylvania

Dr. John W. Baker, College of Wooster, Ohio

Mr. David R. Bookstaver, University of Pittsburgh, Pennsylvania

Dr. J. Paul Brawner, West Virginia University, Morgantown, West Virginia

Mr. London H. Brown, West Virginia University, Morgantown, West Virginia

Mr. Clair H. Cogan, Schenley High School, Pittsburgh, Pennsylvania

Dr. Clyde L. Colson, West Virginia University, Morgantown, West Virginia

Dr. Stephen A. Crouse, Washington and Jefferson College, Washington, Pennsylvania

Mr. Harry O. Ellison, Schenley High School, Pittsburgh, Pennsylvania

Dr. Louis W. H. Johnston, University of Pittsburgh, Pennsylvania

Dr. Harold N. Kerr, West Virginia University, Morgantown, West Virginia

Mr. Alton D. Kidd, Allegheny College, Meadville, Pennsylvania

Dr. Abe Laufe, University of Pittsburgh, Pennsylvania

Dr. Edward F. C. McGonogle, Duquesne University, Pittsburgh, Pennsylvania

Mr. Wayne R. Merrick, Allegheny College, Meadville, Pennsylvania

Mr. Thomas Quinn, Duquesne University, Pittsburgh, Pennsylvania

Mr. William F. Schulz, University of Pittsburgh, Pennsylvania

Mr. W. Edward Sell, University of Pittsburgh, Pennsylvania

Dr. Mary E. Warga, University of Pittsburgh, Pennsylvania

Dr. William P. Wharton, Allegheny College, Meadville, Pennsylvania

Social Work Study Group

Dr. Charles Cressman, Grove City College, Pennsylvania

Mr. Thompson R. Fulton, West Virginia University, Morgantown, West Virginia

Dr. Lawrence Hugo, Duquesne University, Pittsburgh, Pennsylvania

Dr. Robert B. Lane, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Dr. William C. Lehmann, Chatham College, Pittsburgh, Pennsylvania

Miss Bettie Livermore, West Virginia University, Morgantown, West Virginia

Dr. William H. McCullough, University of Pittsburgh, Pennsylvania

Mrs. Erma Meyerson, University of Pittsburgh, Pennsylvania

Dr. Atlee Stroup, College of Wooster, Ohio

Business Administration Study Group

Dr. Kenneth G. Ainsworth, Allegheny College, Meadville, Pennsylvania

Dr. Thomas C. Campbell, West Virginia University, Morgantown, West Virginia

Dr. Elvis Eckles, Allegheny College, Meadville, Pennsylvania

Dr. William W. Frasure, University of Pittsburgh, Pennsylvania

Dr. Lawrence F. Greenberger, Duquesne University, Pittsburgh, Pennsylvania

Dr. Alfred N. Hull, Thiel College, Greenville, Pennsylvania

Dr. Thomas Isaack, West Virginia University, Morgantown, West Virginia

Dr. Edward D. Kruse, North Hills High School, Pittsburgh, Pennsylvania

Dr. Stewart Lee, Geneva College, Beaver Falls, Pennsylvania

Dr. Edgar McCormick, Kent State University, Ohio

Dr. James Moore, Beaver Falls Area Schools, Pennsylvania

Mrs. Marjorie Nelson, New Castle High School, Pennsylvania

Mrs. Inez Patrick, Brentwood High School, Pittsburgh, Pennsylvania

Professor James H. Rossell, University of Pittsburgh, Pennsylvania

Dr. William K. Schusler, Duquesne University, Pittsburgh, Pennsylvania

Dr. Frank Simonetti, University of Akron, Ohio

Professor Leonard Sweet, University of Akron, Ohio

Dr. Vern H. Vincent, West Virginia University, Morgantown, West Virginia

Dr. Paul D. Walter, University of Pittsburgh, Pennsylvania

Dr. Stanley A. Zingle, Baldwin High School, Pittsburgh, Pennsylvania

Graduate Humanities Study Group

Dr. Clifford W. Anderberg, Washington and Jefferson College, Washington, Pennsylvania

Dr. William E. Arnett, Chatham College, Pittsburgh, Pennsylvania

Dr. Joe M. Ball, University of Pittsburgh, Pennsylvania

Dr. Robert Chapman, Mt. Union College, Alliance, Ohio

Dr. Ruel Elton Foster, West Virginia University, Morgantown, West Virginia

Dr. Paul J. Jacoby, Seton Hill College, Greensburg, Pennsylvania

Dr. Jack Kolbert, University of Pittsburgh, Pennsylvania

Dr. T. F. Marshall, Kent State University, Ohio

Dr. Frank T. Phipps, University of Akron, Ohio

Dr. William O. Sellars, Oberlin College, Ohio

Dr. Armand E. Singer, West Virginia University, Morgantown, West Virginia

Dr. William B. Stein, Washington and Jefferson College, Washington, Pennsylvania

Mr. Edward Teichert, Penn Hills High School, Pittsburgh, Pennsylvania

Dr. Richard C. Tobias, University of Pittsburgh, Pennsylvania

Mr. Bernard Weiner, University of Akron, Ohio

Public Affairs Study Group

Mr. John Coleman, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Mr. Carl Frasure, West Virginia University, Morgantown, West Virginia

Mr. Nathan Grundstein, University of Pittsburgh, Pennsylvania

Mr. Donald Hayhurst, West Virginia University, Morgantown, West Virginia

Mr. John Hickey, Erie Schools, Pennsylvania

Mr. J. Roger Howe, Granville Schools, Ohio

Mr. Leland C. Lehman, Denison University, Granville, Ohio

Dr. Hugh MacNiven, University of Pittsburgh, Pennsylvania

Mr. Lewis I. Maddocks, College of Wooster, Ohio

Mr. Wayne R. Merrick, Allegheny College, Meadville, Pennsylvania

Mr. Ram S. Tarneja, Duquesne University, Pittsburgh, Pennsylvania

Mr. James Thompson, University of Pittsburgh, Pennsylvania

Mr. Paul Varnum, East Washington High School, Pennsylvania

Mr. William P. Wharton, Allegheny College, Meadville, Pennsylvania

Teacher Education Study Group

Dr. Frederick D. Aldrich, Chatham College, Pittsburgh, Pennsylvania

Dr. A. Dale Allen, Indiana State College, Pennsylvania

Dr. Doris N. Anderson, Geneva College, Beaver Falls, Pennsylvania

Mr. Harold K. Blayney, Wheeling High School, West Virginia

Dr. A. B. Cunningham, West Virginia University, Morgantown, West Virginia

Dr. Lily Detchen, Chatham College, Pittsburgh, Pennsylvania

Mr. Robert V. Flynn, Upper St. Clair Township Schools, Pennsylvania

Dr. John H. Forry, Westminster College, New Wilmington, Pennsylvania

Dr. C. Herman Grose, University of Pittsburgh, Pennsylvania

Mrs. Ferne Horne, Mt. Lebanon High School, Pittsburgh, Pennsylvania

Dr. Joseph C. Keifer, Mt. Lebanon Public Schools, Pennsylvania

Dr. John A. McIsaac, Geneva College, Beaver Falls, Pennsylvania

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Dr. Carl R. Streams, Upper St. Clair Township Schools, Pennsylvania

Mr. John A. Thorpe, Shady Side Academy, Pittsburgh, Pennsylvania

Dr. Harold T. Wieand, Slippery Rock State College, Pennsylvania

Dr. Charles F. Young, West Liberty State College, West Virginia

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Dr. Edward F. Cooke, University of Pittsburgh, Pennsylvania

Dr. Ray A. Johnson, Thiel College, Greenville, Pennsylvania

Dr. James Liu, University of Pittsburgh, Pennsylvania

Dr. Raymond Richman, University of Pittsburgh, Pennsylvania

Dr. Theodore Scheifele, Thiel College, Greenville, Pennsylvania

Dr. Verne C. Wright, University of Pittsburgh, Pennsylvania

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Dr. T. H. Lunkelberger, University of Pittsburgh, Pennsylvania

Dr. Simeon Friedberg, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Dr. Ruth Goodman, Westinghouse Research Laboratories, Pittsburgh, Pennsylvania

Dr. Peter Gray, University of Pittsburgh, Pennsylvania

Dr. Sigmund Hammer, Gulf Research and Development Corporation, Pittsburgh, Pennsylvania

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Dr. Walter Lewis, West Virginia University, Morgantown, West Virginia

Dr. Robert Morgan, Carnegie Institute of Technology, Pittsburgh, Pennsylvania

Dr. Morris Ostrofsky, Westinghouse Research Laboratories, Pittsburgh, Pennsylvania

Dr. Eugene F. Peckman, Pittsburgh Board of Education, Pennsylvania

Dr. John D. Reinheimer, College of Wooster, Ohio

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Dr. Philip Benjamin, Allegheny College, Meadville, Pennsylvania

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Dr. M. H. Berry, West Liberty State College, West Virginia

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Mrs. Wilda Camery, Allegheny County Health Department, Pittsburgh, Pennsylvania

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Dr. Walter H. Puterbaugh, Thiel College, Greenville, Pennsylvania

Dr. Harold State, Allegheny College, Meadville, Pennsylvania

Dean W. F. Swanson, University of Pittsburgh, Pennsylvania

Reverend Addison Yehl, Gannon College, Erie, Pennsylvania

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